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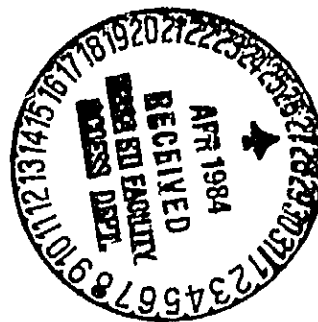
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Operations Division

Final
May 14, 1982



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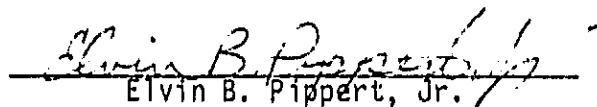
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FLIGHT OPERATIONS DIRECTORATE


STS-4 CREW ACTIVITY PLAN

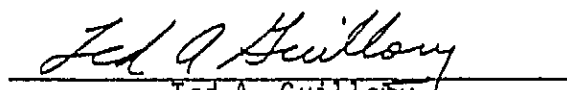
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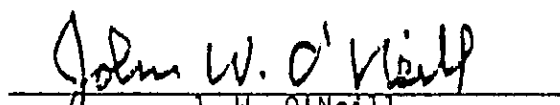
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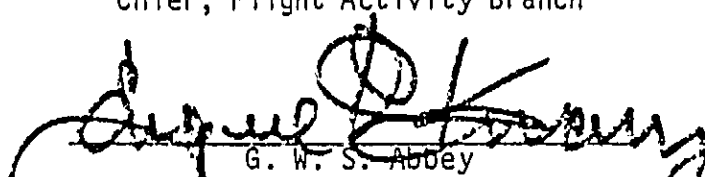

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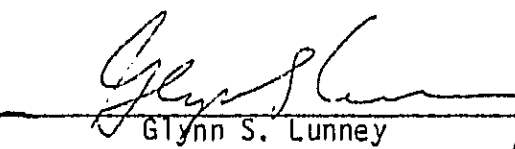
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ACKNOWLEDGMENTS

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CHANGE CONTROL RECORD

ORBITAL FLIGHT TEST: STS-4 Crew Activity Plan

CONTROL NO.	FDF EDITION INCORPORATED*		DISAPPROVED OR OTHER DISPOSITION
	TITLE	DATE	
CAP(4)-1	BASIC	03/13/82	WITHDRAWN
CAP(4)-2	FINAL	05/14/82	
CAP(4)-3	FINAL	05/14/82	
CAP(4)-4A	FINAL	05/14/82	
CAP(4)-5	FINAL	05/14/82	
CAP(4)-6	FINAL	05/14/82	
CAP(4)-7	FINAL	05/14/82	
CAP(4)-8	FINAL	05/14/82	
CAP(4)-9	FINAL	05/14/82	
CAP(4)-10	FINAL	05/14/82	
CAP(4)-11	FINAL	05/14/82	
CAP(4)-12	FINAL	05/14/82	
CAP(4)-13	FINAL	05/14/82	
CAP(4)-17	FINAL	05/14/82	

*482 changes incorporated into current edition only are identified by change bars.

STS-4/FIN

STS-4 CREW ACTIVITY PLAN

LIST OF EFFECTIVE PAGES

FINAL 05/14/82

i..... STS-4/FIN
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INTRODUCTION

The STS-4 Crew Activity Plan contains the on-orbit timeline, which is a flight data file article. It does not contain the detailed crew activities that will be covered in the STS-4 Ascent, Post Insertion, Deorbit Prep, or Entry checklists.

This on-orbit timeline satisfies the objectives specified in the STS-4 Flight Requirements Document (Final).

The flight profile (trajectory data) used for this Crew Activity Plan is from Ref. 2 which is for a June 27, 1982 launch date.

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TIMELINE FORMAT SYMBOL NOMENCLATURE

GMT (D:H:M)	NET (D:H:M)	CDT (D:H:M)	FO/DOY	BEIR MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
157:15:00/ 158:03:00/ 007:00:00/ 002:12:00/ 157:10:00/ 157:22:00	3	3	157	20.6	MAY 14, 1982	STS-4	FINAL	STS4/FIR
GMT: 157 10	11	12	14	15	16	17	18	19
FO	1	2	3	4	5	6	7	8
NET: 007 0	1	2	3	4	5	6	7	8
CDR	1	2	3	4	5	6	7	8
PLT	1	2	3	4	5	6	7	8
DATE/NIGHT	114	115	116	117	118	119	120	121
ORBIT	[Orbit Diagram]							
WORLDWIDE	[World Map]							
EARTH	[Earth Diagram]							
TRADE	[Trade Wind Diagram]							
W/SRA	[Weather/Solar Radiation Diagram]							
CSTOR	[Coverage/Status Diagram]							
COVERAGE	[Coverage/Status Diagram]							
SCLS	[Coverage/Status Diagram]							
COVER	[Coverage/Status Diagram]							
OPS	[Coverage/Status Diagram]							
DEGR	[Coverage/Status Diagram]							
EST	[Coverage/Status Diagram]							
EDN	[Coverage/Status Diagram]							
MANEUVERS	[Coverage/Status Diagram]							
TV/VIR	[Coverage/Status Diagram]							
EXT CTS	[Coverage/Status Diagram]							
MIR	[Coverage/Status Diagram]							
NOTES:	ORIGINAL PAGE 13 OF POOR QUALITY							

Figure 1-1

A. FORMAT SYMBOL NOMENCLATURE

1. Summary Level Timeline (12-Hr Timespan)

The following letters (a-j) refer to those highlighted in Figure 1-1.

- a. **TIMESCALES** - Three time references are presented in this section of the summary timeline format. The time references used are TIG Minus Time (TIG), Greenwich Mean Time (GMT), and Mission Elapsed Time (MET). MET is referenced to liftoff beginning at 00/00:00:00 (days, hours, minutes and seconds). TIG is referenced to the deorbit ignition time and counts down to 0/00:00:00 at ignition on the CRT timer. TIG is only used on the deorbit preparations on entry day.
- b. **CREWMEN (CDR & PLT)** - This is the crewmen column of the format where titles of scheduled activities are shown for the commander (CDR) and pilot (PLT) at the appropriate times in the flight.
- c. **DAY/NIGHT, ORBIT, MOON UP/DOWN**
 - 1) **Day/Night** - The orbital day/night intervals are delineated with black bars indicating when the Orbiter is in darkness.
 - 2) **Orbit** - Indicates which orbit the spacecraft is in by numerical sequence. The beginning of an orbit occurs when the Orbiter crosses the Earth's equator going from the southern to the northern hemisphere (ascending node). The succession of orbits is numbered in this column starting with Orbit 1 for launch.
 - 3) **Moon Up/Down** - The moon up/down intervals are delineated with black bars indicating when the moon is down.
- d. **EARTH TRACE W/SAA** - This is a display of the groundtrack of the Orbiter and when it passes over the South Atlantic Anomaly (SAA) (indicated by a '|—|').
- e. **GSTDN and SGLS COVERAGE** - The GSTDN and SGLS communication coverage periods are indicated in this area with a horizontal line indicating when communication is available; the GSTDN and SGLS site is identified to the right of the line.
- f. **OPS** - The GPC software configuration in use during the flight is indicated in this area.
- g. **DEORBIT KSC/EDW** - Times are identified in this area when deorbit burn opportunities exist for Edwards AFB (EDW) and Kennedy Space Center (KSC).
- h. **ATTITUDE and MANEUVERS**
 - 1) **Attitude** - The current attitude of the vehicle is identified in this area, i.e., PTC, IMU, -ZLV X-POP, -XSI.

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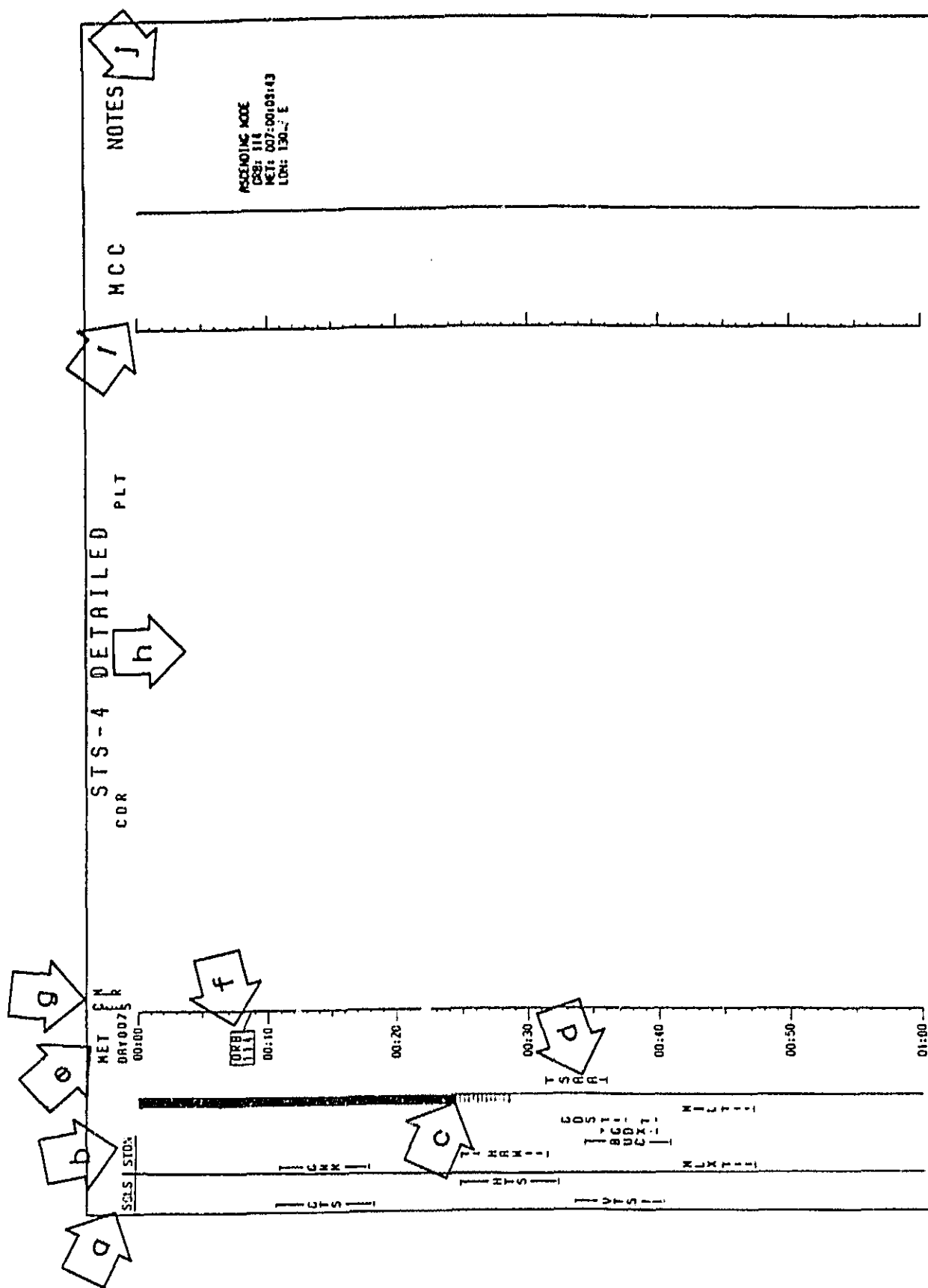


Figure 1-2
1-4





MI3/4-SIS

2) Maneuvers - An '+' is placed at the time an attitude maneuver occurs if the duration in attitude is to be greater than 15 minutes.

- i. TV/VTR - Live TV or recorded TV (VTR) is indicated in this area with a '|—|'.
- j. CFES/MLR - Payload operating periods are indicated with a '|—xxx—|'.

2. Detailed Level Timeline (1-Hr Timespan)

The following letters (a-j) refer to those highlighted in Figure 1-2.

- a. SGLS COVERAGE - In this column the SGLS sites and their acquisition periods are identified by a solid line. The sites are HTS, VTS, GTS, IOS, and NHS.
- b. GSTDN COVERAGE - In this column the GSTDN sites and their acquisition periods are identified. Each site acquisition period is annotated by a solid line, a dashed line or a dotted line. The different annotations indicate the following:
 -  A site that has S-Band, UHF voice and TV capabilities (GDS, HAW, MIL, MLX, GDX)
 -  A site with S-Band and UHF voice capabilities (BDA, GWM, ACN, BUC, DKR, MAD, MAX)
 -  A site with only S-Band (no UHF or TV) capabilities (AGO, ORR)
 -  A site with only UHF (no S-band or TV) capabilities (BOT, YAR, IOS)
- c. DAY/NIGHT CYCLE - In this column a solid bar indicates the period when the Orbiter and Earth are in darkness. A slashed line indicates when the Orbiter is in daylight but the Earth beneath the Orbiter is still in darkness (terminator).
- d. SOUTH ATLANTIC ANOMALY (SAA) - This bar defines those periods when the Orbiter passes through the SAA.
- e. MET TIMESCALE - This format is a one-hour format with minute tick marks on the vertical timescale referenced to Mission Elapsed Time (MET) with liftoff occurring at 0/00:00:00.
- f. ORBIT - Indicates which orbit the spacecraft is in by numerical sequence. Orbit 1 begins at liftoff with subsequent orbits starting when the Earth's equator is crossed (ascending node).

- g. ATTITUDE and PAYLOAD USER COLUMN (ATT/CFES/MLR) - Indicates Orbiter attitude and when CFES and MLR are in operation.
- h. CREWMAN COLUMNS - The activities for the CDR and PLT are scheduled in this area.
- i. MCC COLUMN - Any uplinks, commands or updates required are scheduled at the appropriate time in this column. A vertical line is also used to indicate TV coverage.
- j. NOTES - This area will be used for location of pads, times of star availability, time and longitude of the ascending node, TV and photography scenes, and any other supplemental information required.
- k. In the timescale a DAP A and DAP B CONFIG reference will be included. A number is associated with both DAPs A and B; each number indicates a particular DAP configuration for either DAP A or DAP B. The DAP reference without parentheses indicates the 'active' DAP for that time period on the page. Table 1-1 identifies the various configurations for DAP A and DAP B that are used in the STS-4 timeline.

DAP A CONFIGURATIONS

<u>TRANSLATION</u>		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16
PULSE	ft/sec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.14	0.1	0.1	0.1	0.1	0.1
<u>ROTATION</u>																	
DSC RT	NORM o/sec	0.2	0.2	2.0	0.2	1.0	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	VERN o/sec	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.5	0.007	0.2	0.2	0.2	0.2	0.2	0.2	0.2
PULSE	NORM o/sec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.28	0.6	1.0	0.1	0.3	0.1
	VERN o/sec	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
COMP	NORM o/sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VERN o/sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<u>DEADBAND</u>																	
ATT	NORM°	5.0	5.0	1.0	5.0	5.0	3.0	3.0	5.0	5.0	1.0	5.0	5.0	5.0	5.0	5.0	0.1
	VERN°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	3.0	1.0	5.0	0.07	1.0	1.0
RATE	NORM o/sec	0.2	0.2	0.02	0.2	0.2	0.2	0.2	0.2	0.02	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	VERN o/sec	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02
<u>JET OPT</u>																	
P		1	1	3	3	3	3	3	1	1	1	2	3	1	1	3	1
	Y	1	1	3	3	1	3	3	1	1	3	1	3	1	1	3	1
<u>CNTL ACCEL</u>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DAP B CONFIGURATIONS

<u>TRANSLATION</u>		B1	B2	B3	B4	B5	B6
PULSE	ft/sec	0.02	0.02	0.02	0.02	0.02	0.1
<u>ROTATION</u>							
DSC RT	NORM o/sec	0.5	0.5	0.5	0.2	0.5	0.5
	VERN o/sec	0.2	0.2	0.2	0.2	0.2	0.3
PULSE	NORM o/sec	0.04	0.04	0.04	0.04	0.28	0.04
	VERN o/sec	0.002	0.002	0.002	0.002	0.002	0.001
COMP	NORM o/sec	0.0	0.0	0.0	0.0	0.0	0.0
	VERN o/sec	0.0	0.0	0.003	0.0	0.0	0.0
<u>DEADBAND</u>							
ATT	NORM°	3.0	3.0	3.0	3.0	3.0	3.0
	VERN°	1.0	0.1	1.0	1.0	1.0	3.0
RATE	NORM o/sec	0.2	0.2	0.2	0.2	0.2	0.2
	VERN o/sec	0.02	0.02	0.02	0.02	0.02	0.02
<u>JET OPT</u>							
P		1	1	1	3	3	1
Y		1	1	1	3	1	1
CNTL ACCEL		0	0	0	0	0	0

STS-4 OVERVIEW

ORIGINAL PAGE IS
OF POOR QUALITY

WILSON 28/11/5

ORIGINAL PAGE 101
OF POOR QUALITY

ORIGINAL PAGE 10
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FLIGHT STS-4

EDITION FINAL

PUB. DATE 5/14/82

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DEORBIT IGNITION (6/22:41:23)
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SUMMARY TIMELINE

SUMMARY
TIMELINE

CNT	(D:H:M)	MET	(D:H:M)	CDT	(D:H:M)	FD/DOY	BETA	MOON	FLIGHT	EDITION	PUB. DATE
178:15:00	179:03:00	000:00:00	000:12:00	178:10:00	178:22:00	1/178	-1.2		STS-4	FINAL	5/14/82

DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00	CDR	PLT	DAY	ORBIT	JUNE 27, 1982	STS-4	FINAL	5/14/82

TIME	CDR	PLT	DAY/NIGHT	ORBIT	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
178:15:00</								

ORIGINAL PAGE IS
OF POOR QUALITY

MEASIS 29/11/15

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1-3

[illegible]

CNT	(D:H:M)	MET	(D:H:M)	CDT	(D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
180:15:00/	181:03:00/	002:00:00/	002:12:00/	180:10:00/	180:22:00/	3/180	CDT 3.5		JUNE 29 592	STS-4	FINAL	5/14/82
CNT: 180 15 FD: 3 MET: 002 0												
COR-	MEAL	TECH PLUME SURVEY	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE
PLT	MEAL	TECH PLUME SURVEY	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE	EXERCISE
DAY/NIGHT	33	34	35	36	37	38	39	40				
ORBIT												
W/SRR												
EARTH TRACE												
W/SRR												
CSTDH COVERAGE												
SCLS COVERAGE												
OPS												
DEORB KSC												
EDH												
ATTITUDE												
MANEUVERS												
TV/ATR												
CFES												
MLR												
NOTES:	ORIGINAL PHOTOGRAPH OF POOR QUALITY 0 STAR TRACKERS OFF 0 FTD 412-02 START/STOP COLD/DRY 0 FTD 412-01 ATT HOLD THERMAL RESPONSE 0 FTD 454-01 RCS PLUME RUM FIELD MEASUREMENT 0 FTD 454-01 RCS PLUME RUM FIELD MEASUREMENT 0 FTD 412-01 ATT HOLD THERMAL RESPONSE 0 DNS/RCS											

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3-6

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FO/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
181:03:00/ 181:15:00		002:12:00/ 003:00:00		180:22:00/ 181:10:00		4 / 180 CDT		4.9		C		JUNE 30, 1982		STS-4		FINRL		5/14/82	
CDT : 181 3		MET : 002 12		CDT : 180 22		FO: 4		BETA: 4.9		MOON: C		JUNE 30, 1982		STS-4		FINRL		5/14/82	
CDR		SLEEP		POST SLEEP ACT		MERL		EXERCISE		MERL		MERL		MERL		MERL		MERL	
PLT		SLEEP		POST SLEEP ACT		MERL		EXERCISE		MERL		MERL		MERL		MERL		MERL	
DRY/NIGHT		41		42		43		44		45		46		47		48			
ORBIT		41		42		43		44		45		46		47		48			
EARTH TRACE W/SRA		41		42		43		44		45		46		47		48			
CSTDN COVERAGE		-CHN -RGN -RGN		-CHN -RGN -RGN		-CHN -RGN -RGN		-CHN -RGN -RGN		-CHN -RGN -RGN		-CHN -RGN -RGN		-CHN -RGN -RGN		-CHN -RGN -RGN		-CHN -RGN -RGN	
SGLS COVERAGE		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
OPS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
DEORB KSP EDH		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
ATTITUDE		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
MANEUVERS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
TV/VTR		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
CFES		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
MLR		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
NOTES:		<p> # OMS/RCS # FSD 5436-01 CFES (SEQUENCE 11) # STOR TRACKERS ON # FTD 412-02 STRATROCK COLDSONK # FTD 412-01 ATT HOLD THERMAL RESPONSE # FSD 5436-01 CFES # FTD 466-01 RAD PERFORMANCE TEST # FTD 479-01 - ON ORBIT TROPH NAV # FTD 466-01 RAD PERFORMANCE TEST # FSD 5436-01 CFES # (SAMPLE 4 SEPARATION & COLLECTION) </p>																	

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3-7

DISK 28/41/5

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GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
183:03:00/ 183:15:00		004:12:00/ 005:00:00		182:22:00/ 193:10:00		6 / 182 CDT		11.4		0		JULY 2, 1982		STS-4		FINAL		5/14/82	
<p>CHT : 183 FD : 5 MET : 004</p>																			
CDR		SLEEP		POST SLEEP ACT		MEAL		PLBO CYCLE TEST		MEAL		MEAL		BURN PREP		EXERCISE		TECH CRS RELEASE	
PLT		SLEEP		POST SLEEP ACT		MEAL		PLBO CYCLE TEST		MEAL		MEAL		BURN PREP		TV ACT		EXERCISE	
DAY/NIGHT ORBIT		73		74		75		76		77		78		79		80			
EARTH TRACE W/SAR																			
CSTON COVERAGE		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH	
SCLS COVERAGE		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH		-DNR -ACH	
OPS DEORB KSC EDW		17:13		17:13		17:13		17:13		17:13		17:13		17:13		17:13		17:13	
ATTITUDE		TAIL TO SUN		TAIL TO SUN		TAIL TO SUN		TAIL TO SUN		TAIL TO SUN		TAIL TO SUN		TAIL TO SUN		TAIL TO SUN		TAIL TO SUN	
MANEUVERS TV/VTR CFES MLR																			
NOTES:		<p> • FTO 412-05 FICS THERMAL SONARBOX, ONE FNO ENGINE • HI LOBO DUCT HTR • FTO 474-01 NAV BASE STABILITY • FTO 412-01 ATT HOLD THERMAL RESPONSE • FTO 451-03 PLBO COLD CASE PERFORMANCE • FTO 451-03 PLBO COLD CASE PERFORMANCE • 30 SEC F3F BURN • FTO 412-05 FICS THERMAL SONARBOX, ONE FNO ENGINE </p>																	

ORIGINAL PAGE 11
OF POOR QUALITY

5/14/82 515471N

3-11

CMT	(D:H:M)	MET	(D:H:M)	CDT	(D:H:M)	FD/DOY	BETA	MOON	FLIGHT	EDITION	PUB. DATE
183:15:00/	184-03:00	005:00:00/	005:12:00	183:10:00/	183:22:00	6/183	CDT	13.2	JULY 2, 1982	FINAL	5/14/82
GMT : 183 15 ID : 6 MET : 005											
CDR	15	16	17	18	19	20	21	22	23	24	25
PLT	16	17	18	19	20	21	22	23	24	25	26
DAY/NIGHT	17	18	19	20	21	22	23	24	25	26	27
ORBIT	18	19	20	21	22	23	24	25	26	27	28
EARTH TRACE	19	20	21	22	23	24	25	26	27	28	29
W/SAR	20	21	22	23	24	25	26	27	28	29	30
CSTDN COVERAGE	21	22	23	24	25	26	27	28	29	30	31
SCLS COVERAGE	22	23	24	25	26	27	28	29	30	31	32
OPS	23	24	25	26	27	28	29	30	31	32	33
DEORB KSC	24	25	26	27	28	29	30	31	32	33	34
EDM	25	26	27	28	29	30	31	32	33	34	35
ATTITUDE	26	27	28	29	30	31	32	33	34	35	36
MANEUVERS	27	28	29	30	31	32	33	34	35	36	37
TV/VTR	28	29	30	31	32	33	34	35	36	37	38
CFES	29	30	31	32	33	34	35	36	37	38	39
MLR	30	31	32	33	34	35	36	37	38	39	40
NOTES:	31 NOV FTO 412-01 ATT HOLD THERMAL RESPONSE FTO 412-05 PROS THERMAL SORABOX, ONE PRO ENGINE FTO 452-02 SINGULARITY MANAGEMENT FTO 462-01 PRO SURFACE INSPECT FTO 452-03 UNLOADED ARM RESPONSE TO PROS FTO 452-02 SINGULARITY MANAGEMENT FTO 412-01 ATT HOLD THERMAL RESPONSE DMS/PCS FTO 467-02 LONG TERM VPC FREEZER TEMPERATURE STABILITY CHARGEOUT										

ORIGINAL PAGE 17
OF POOR QUALITY

5714782 518778

3-12



CNT	(D:H:M)	NET	(D:H:M)	COT	(D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
184:15:00/	185:03:00	006:00:00/	006:12:00	184:10:00/	184:22:00	7/184	16.9		JULY 3, 1982	STS-4	FINAL	5-14-82
GMT : 184 15 MET : 006 0												
CDR		PLBO CYCLE TEST	16	17	18	19	20	21	22	23	24	25
		PLBO CYCLE TEST	16	17	18	19	20	21	22	23	24	25
PLT		PLBO CYCLE TEST	16	17	18	19	20	21	22	23	24	25
		PLBO CYCLE TEST	16	17	18	19	20	21	22	23	24	25
DAY/NIGHT			16	17	18	19	20	21	22	23	24	25
ORBIT			16	17	18	19	20	21	22	23	24	25
NON UP/DWN			16	17	18	19	20	21	22	23	24	25
EARTH TRACE W/SAA			16	17	18	19	20	21	22	23	24	25
CSTON COVERAGE			16	17	18	19	20	21	22	23	24	25
SCLS COVERAGE			16	17	18	19	20	21	22	23	24	25
OPS DEORB KSC EDM			16	17	18	19	20	21	22	23	24	25
ATTITUDE			16	17	18	19	20	21	22	23	24	25
MANEUVERS			16	17	18	19	20	21	22	23	24	25
TV/VTR			16	17	18	19	20	21	22	23	24	25
LFES			16	17	18	19	20	21	22	23	24	25
MLR			16	17	18	19	20	21	22	23	24	25
NOTES:			16	17	18	19	20	21	22	23	24	25

ORIGINAL PAGE 1
OF POOR QUALITY

5714782 5184711

3-14

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
185:03:00/ 185:15:00		006:12:00/ 007:00:00		184:22:00/ 185:10:00		8 / 184 CDT		18.8				JULY 4, 1982		STS-4		FINAL		5/14/82	
TTC																			
GMT : 185 3		4		5		6		7		8		9		10		11		12	
FD : 7		13		14		15		16		17		18		19		20		21	
MET : 006 12		13		14		15		16		17		18		19		20		21	
<div style="display: flex; justify-content: space-between;"> <div> <p>CDR</p> <p>SLEEP</p> <p>POST SLEEP MSG REVIEW</p> <p>ACT</p> </div> <div> <p>PLT</p> <p>SLEEP</p> <p>POST SLEEP MSG REVIEW</p> <p>ACT</p> </div> </div>																			
<div style="display: flex; justify-content: space-between;"> <div> <p>DAY/NIGHT</p> <p>ORBIT</p> <p>MON OP/DWN</p> <p>EARTH TRACE W/SRA</p> <p>GSTON COVERAGE</p> <p>SGLS COVERAGE</p> <p>GPS DEORB KSC EDM</p> <p>ATTITUDE</p> <p>MANEUVERS</p> <p>TV/VTR</p> <p>CEES</p> <p>MLR</p> </div> <div> <p>104</p> <p>105</p> <p>106</p> <p>107</p> <p>108</p> <p>109</p> <p>110</p> <p>111</p> <p>112</p> </div> <div> <p>105</p> <p>106</p> <p>107</p> <p>108</p> <p>109</p> <p>110</p> <p>111</p> <p>112</p> </div> <div> <p>105</p> <p>106</p> <p>107</p> <p>108</p> <p>109</p> <p>110</p> <p>111</p> <p>112</p> </div> </div>																			
<p>ORIGINAL PAGE 1 OF POOR QUALITY</p>																			
<p>NOTES:</p> <p>■ ENTRY CONFIC ○ NO SH LIST/VER</p> <p>■ ENTRY CONFIC ■ NO SH LIST/VER</p> <p>○ LAST MERL CLEARUP</p> <p>■ FTO 412-01 ATT HOLD THERMAL RESPONSE</p>																			

DETAILED TIMELINE

FLT DAY 1

STS-4 DETAILED

PLT

NOTES

CCM

CDR

—

HOLDS ITS

PCS 1(2) DN-DEBIT ACT/REF/REL
(DEBIT OPS C/L, ECLS)
and the
POST INSERTION

(ORBIT OPS C/L, ECLS)

POST INSERTION

POST INSERTION

Orbiter HIT at transition
from POST INSERTION to OAP
is FREE DRIFT (-ZLV,XPOP,
-Ydy Forward)

3 1 621 107
 LON: 129.1 E
 MET: 000:04:10
 ORG: 4
 ASCENDING NODE

UPLINK
ORBITER S.V.
UPDATE
DMS 3
BURN PAD
INFORM CREW
RELOAD TGIS

ORIGINAL PAGE IS
OF POOR QUALITY

UPDATE
QMS 4
BURN PAD

ON MCC DIE
P2 FPU FUEL PUMP/MLV COOL S - OFF
CMTLR PHR (three) - OFF

ON-ORBIT DMS BURN (OMS-4)
(ORBIT OPS C/L, OMS)
(2 ENG BURN)

AUTO KMR TO BURN ATT

2-4

MISSIS 281115

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORR: 5
MET: 000:05:39:54
LOW: 106.3 E

CCM

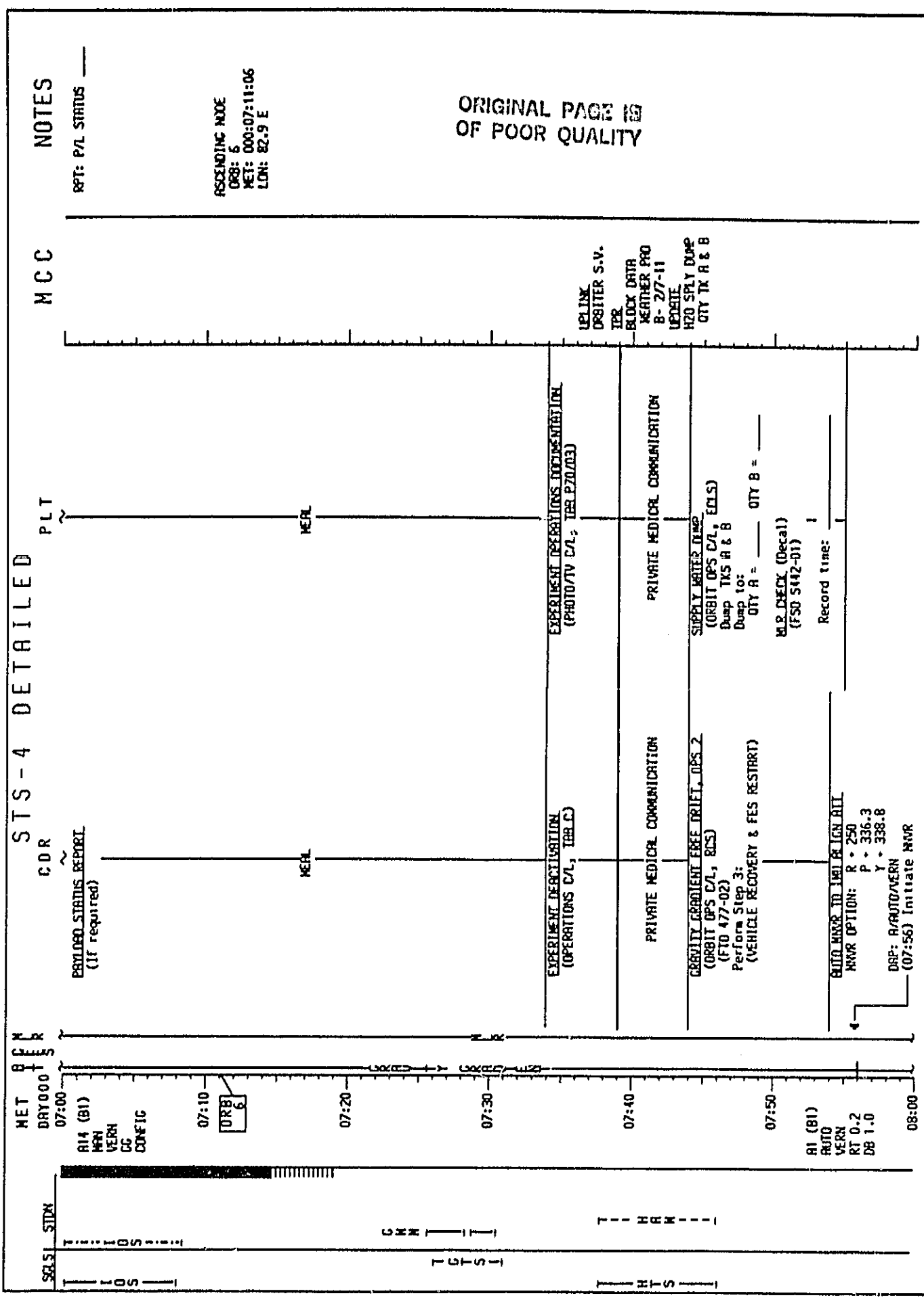
TYPE
BLOCK DATA
WEATHER PRO
8-1/3-6

**UPLINK
ORBITER SV**

D

5114182 515171K

STS-4 DETAILED



NOTES

RPT: P/L STATUS

ASCENDING NODE
ORB: 6
MET: 000:07:11:06
LON: 82.9 E

ORIGINAL PAGE 18
OF POOR QUALITY

MCC

PLT

CDR

EMERGENCY STATUS REPORT
(If required)

EXPERIMENT OPERATIONS IDENTIFICATION
(PHOTO/TV C/L, THE P70/03)

PRIVATE MEDICAL COMMUNICATION

SUPPLY WATER DUMP
(ORBIT OPS C/L, ELS)
Dump TXS A & B
Dump to:
QTY A = QTY B =

WLR CHECK (Decal)
(FSD 5442-01)
Record time:

AUTO NWR TO IMI ALIGN RIT
NWR OPTION: R - 250
P - 336.3
Y - 338.8

DSP: R/AUTO/VERN
(07:56) Initiate NWR

STS-4 DETAILED

MET
DAY 000
09:00

AI (BT)
AUTO
VERB
RT 0.2
DS 1.0

SGLS STON

T C T S I

T H A W I

.....RGO.....

RCN

T S R R I

CDR

PLT

MCC

NOTES

PRE SLEEP ACTIVITY

Speaker Box Checkout

PRE SLEEP ACTIVITY

Speaker Box Checkout

UPLINK
SPC LHO -
1ST COMM
ALERT

SLEEP

SLEEP

ORIGINAL PAGE 19
OF POOR QUALITY

STS-4 DETAILED

NOTES

CCM

PLT

COR

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1001 DAY

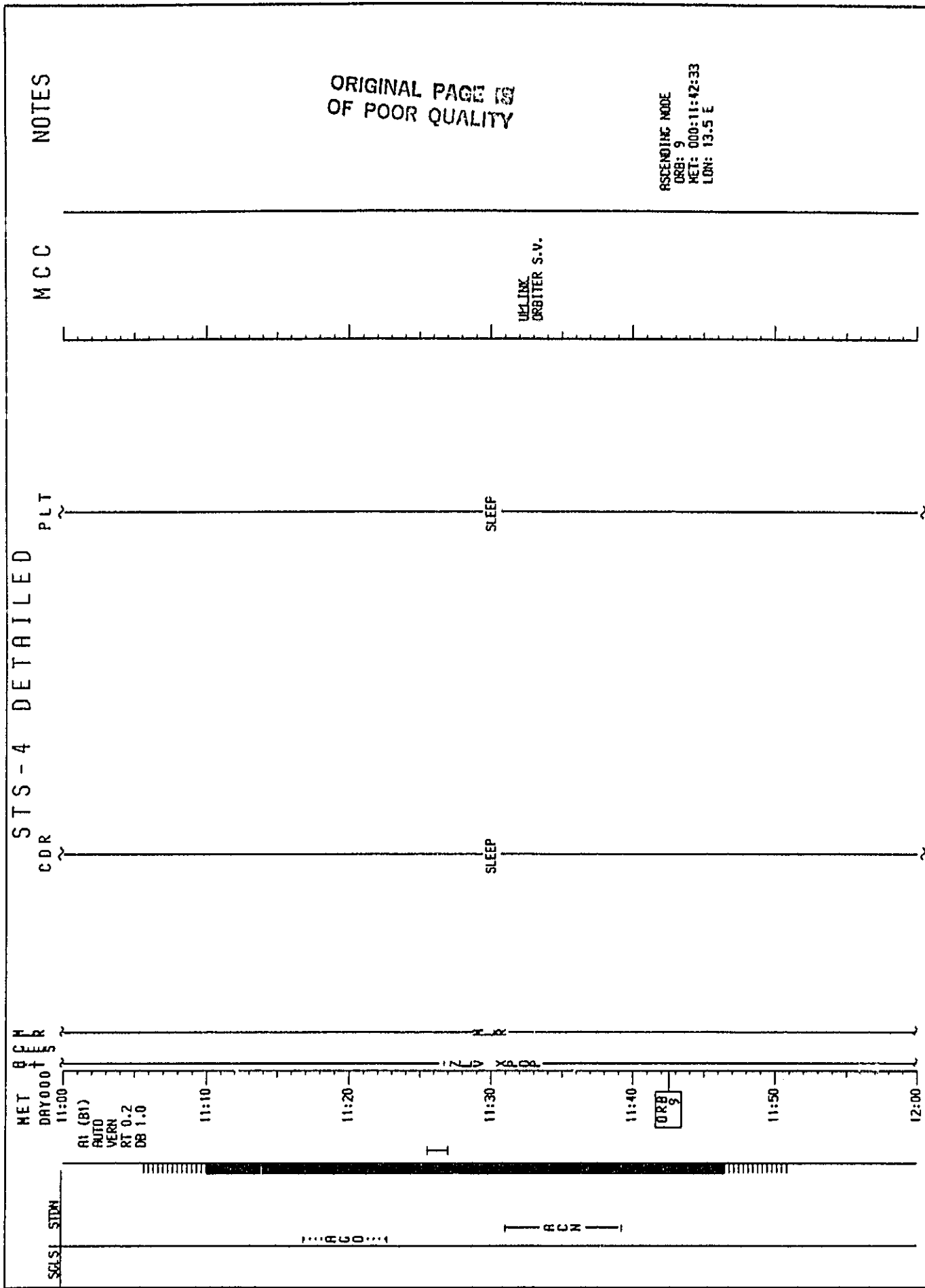
AI (B1)
AUTO
VERN
RT 0.2
DB 1.0

ASCENDING MODE
ORB: 8
MET: 000:10:12:04
LON: 36.6 E

ORIGINAL PAGE IS
OF POOR QUALITY

MIJ/515 28/11/5

STS-4 DETAILED

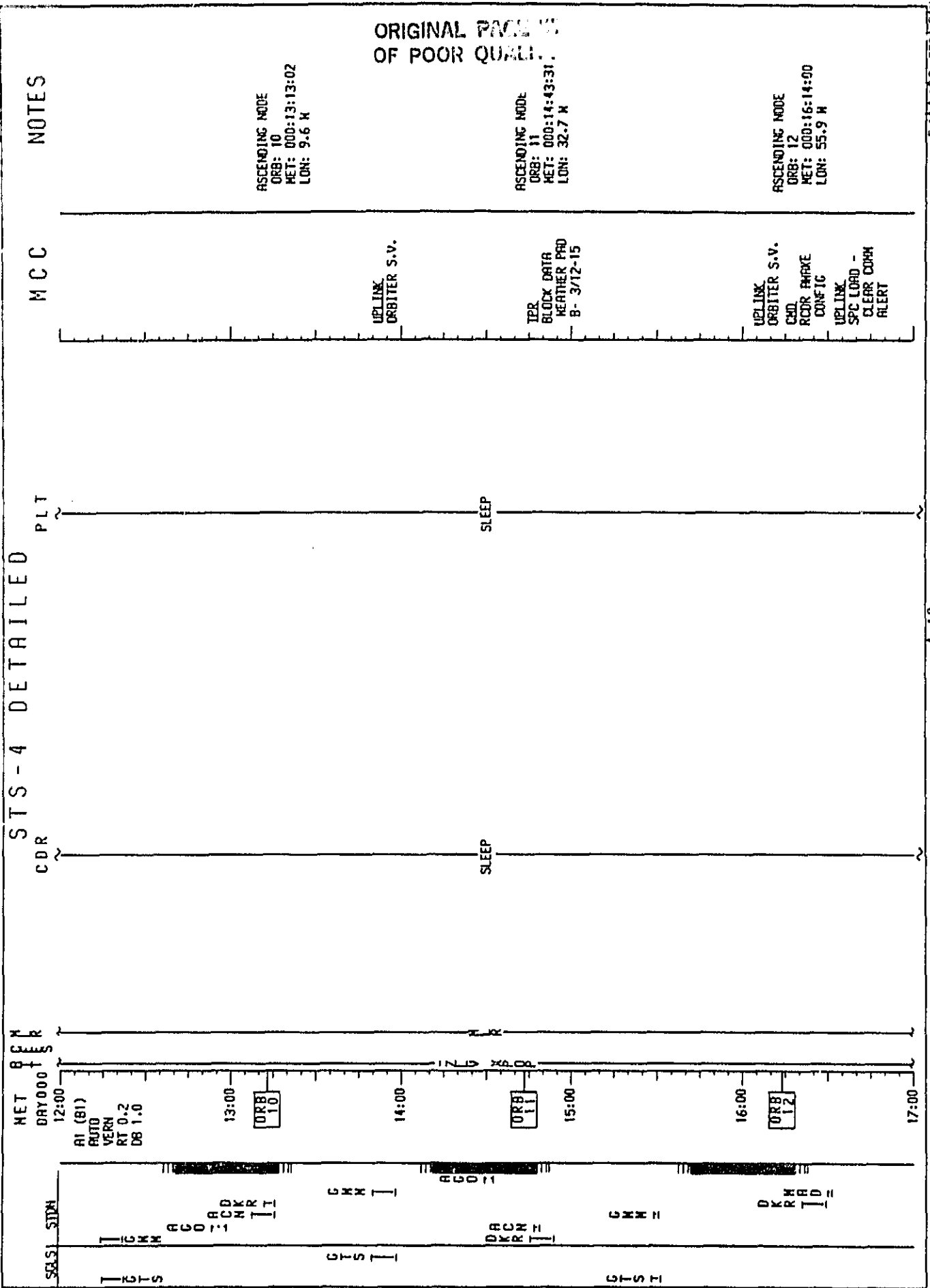


5/14/82 STS471N

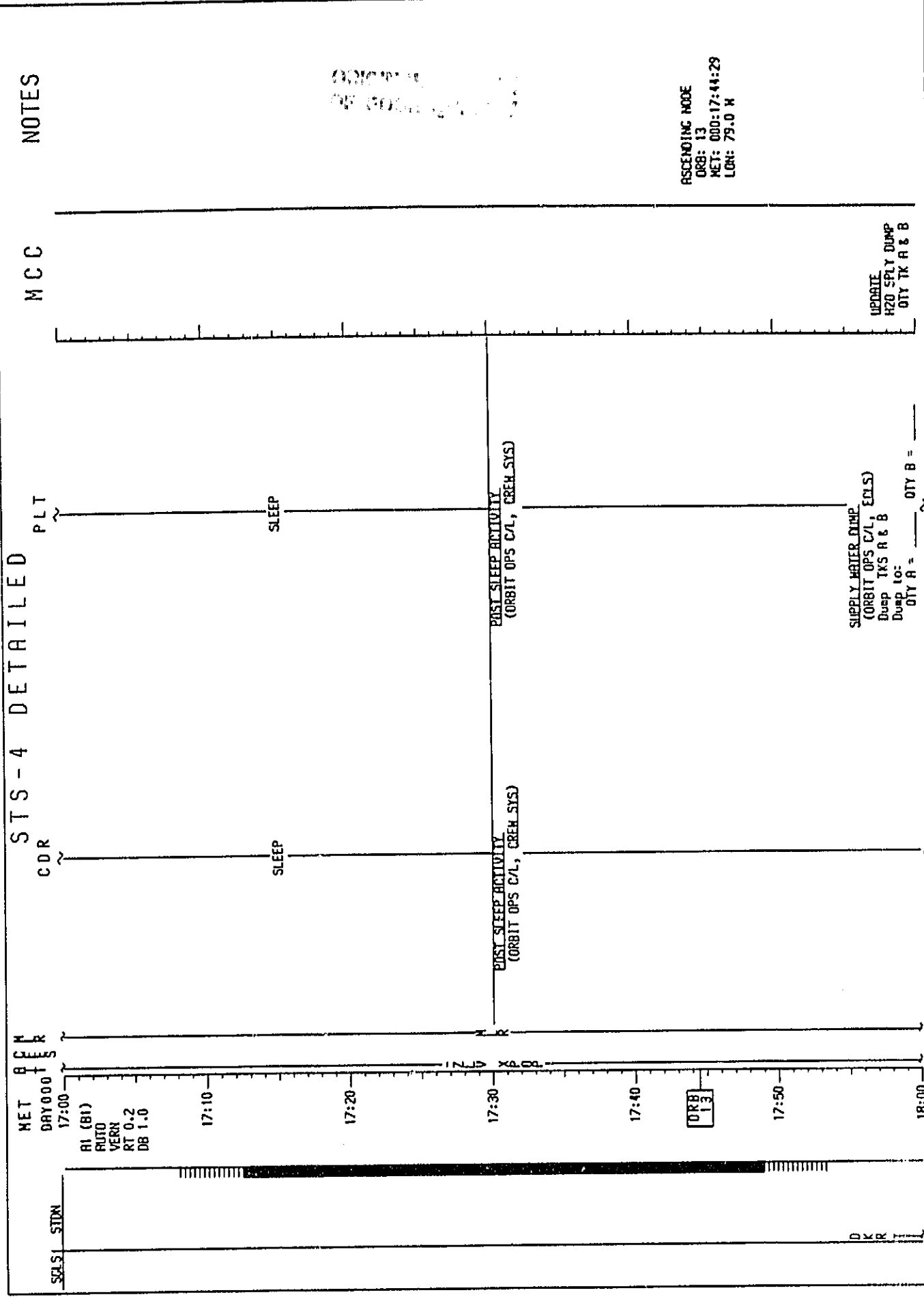
4-9

FLT DAY 2

STS-4 DETAILED



STS-4 DETAILED



STS-4 DETAILED

MET
DAY 000
18:00

AT (B1)
AUTO
VERN
RT 0.2
DB 1.0

CDR

POST SLEEP ACTIVITY

PLT

POST SLEEP ACTIVITY

MCC

INFORM PREM
SM CKPT -
REDD/NOT REDD

NOTES

ORIGINAL PAGE 16
OF POOR QUALITY

Stars 15 & 43
available from
0718:39 to 0719:15

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

AUTO MNR TO MNR AT 18:32
MNR OPTION: R = 16.2
P = 172.5
Y = 13.3

DAP: R/AUTO/VERN
(18:32) Initiate MNR

FUEL CELL PURGE - HULL (Use Card)

HEATER BECOME IC
(ORBIT OPS C/L, EPS)
Config B

OPS 1(2) AIR-PORT ACT/REFUEL IC
(ORBIT OPS C/L, ECL)
Reconfig for SYS 2

STAR TRACKER SELF-TEST
(ORBIT OPS C/L, GNC)
IMUL ALIGNMENT - S TRK (IN DARKNESS)
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 15, HADAR
-Z: 43, RASALHAGUE
ANC DIF: 84.1
GRAVITY GRADIENT FREE DRIFT, OPS 2
(FTO 477-02)
(ORBIT OPS C/L, RCS)
(18:57) Perform Step 1:
(AUTO MNR TO ATTITUDE)
VERN Jets; ATT ID: Per TPR message

HYD THERMAL CONDITIONING ENABLE
(ORBIT OPS C/L, REU/HMD)

TELEPRINTER PHIL

TRK ID: 1 RAC ERR 2 3
A X () () ()
A Y () () ()
A Z () () ()
EXECUTION TIME: / /

STS-4 DETAILED		PLT	MCC	NOTES
MET DAY 000 19:00	CDR	GRAVITY GRADIENT FREE DRIFT, OPS 2 Perform Step 2: (ESTABLISH FREE DRIFT) VERN Jets; ATT ID: Per TPR message	EXPERIMENT OPERATIONS DOCUMENTATION (PHOTO/TV C/L, IBB PIVOL)	ASCENDING MODE ORB: 14 MET: 000:19:14:57 LON: 102.2 N RPT: P/L STATUS — RPT: IMU ALIGN RESULTS —
19:10	EXP 14	EXPERIMENT ACTIVATION (OPERATIONS C/L, IBB A)	EXPERIMENT OPERATIONS DOCUMENTATION (PHOTO/TV C/L, IBB P20/03)	
19:20	AI4 (B1) MAN VERN CC CONFIC	REPORT: IMU ALIGN RESULTS	PAYLOAD STATUS REPORT (If required)	
19:30				
19:40		HERL	HERL	
19:50				
20:00				

ORIGINAL PHOTOGRAPH
OF POOR QUALITY

STS-4 DETAILED

NOTES

MCC

PLT

CDR

MET 0000
DAY 000

20:00
A14 (81)
MAN
VERN
CC
CONFIG

20:10

20:20

20:30

20:40

ORB 15

20:50

21:00

SESLA STDM
TDS

TDS

WORK

TT B
MND
ILR
LXL

ORIGINAL PAGE
OF POOR QUALITY

ASCENDING NODE
ORB: 15
MET: 000:20:45:26
LON: 125.3 W

TYPE
BLOCK DATA
HEATHER PAD
8- 4/16-19

DEFS ACTIVATION/CONF SYS ZERO LOCK
(Cue Card)
(FSO 5436-01)
Sequence 1 - Samples 1,2 & 3

Changeout wireless
headset battery pack

STS-4 DETAILED PLT

CDR

CABIN TV SETUP (CIVIL-DEES TRY OPS)
(PHOTO/TV C/L, TV SCENES)

NOTES

MCC

ORIGINAL PAGE IS
OF POOR QUALITY

CONT SAMPLE FLOW/CONT SEP RUN -
PART 1 (Cue Card)
(FSO 5436-01) Sample 1
Operator Call (Approx. 21:15)
Display - CONT SAMPLE FLOW

Operator Call (Approx. 21:28)
Display - PHOTO

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IRR P70/04)

WDS ACTIVATION (Cue Card)
(FSO 5441-01)

NET 8 C/M

DAY 000

21:00

21:10

21:20

21:30

21:40

21:50

22:00

R14 (B1)

MON

VERA

CC

CONFIC

SQLS1 SIDH

MB

WLD

TXA

L

M
DR
KD
RT

105

105

5714782 SIS/IN

4-15

STS-4 DETAILED

CDR

PLT

NOTES

MCC

MET DAY 000

R14 (BT)
MEM
VERB
CC
CONFIC

22:10

ORB 16

22:20

HOUSEKEEPING

22:30

DEL POWER UP (MIL)

R11:H DFI PCM CONT 1,2,3 SCSC (three) - ON

SIMULTANEOUS R/G 1 & R/G 2 DEMO

SIMULTANEOUS R/G 1 & R/G 2 DEMO

DEL POWER DOWN

R11:H DFI PCM CONT 1,2,3 SCSC (three) - OFF

CONT SEP RUN - PART II (Cue Card)
(FSO S436-01) Sample 1
Operator Call (Approx. 22:43)
Display - PHOTO

MEAL PREP (Cue Card)
Prepare DAY 2, MEAL B

23:00

UP LINK
ORBITER S.V.

ASCENDING NODE
ORB: 16
MET: 000:22:15:55
LON: 148.5 W

ORIGINAL
OF POOR QUALITY

STS-4 DETAILED

NOTES

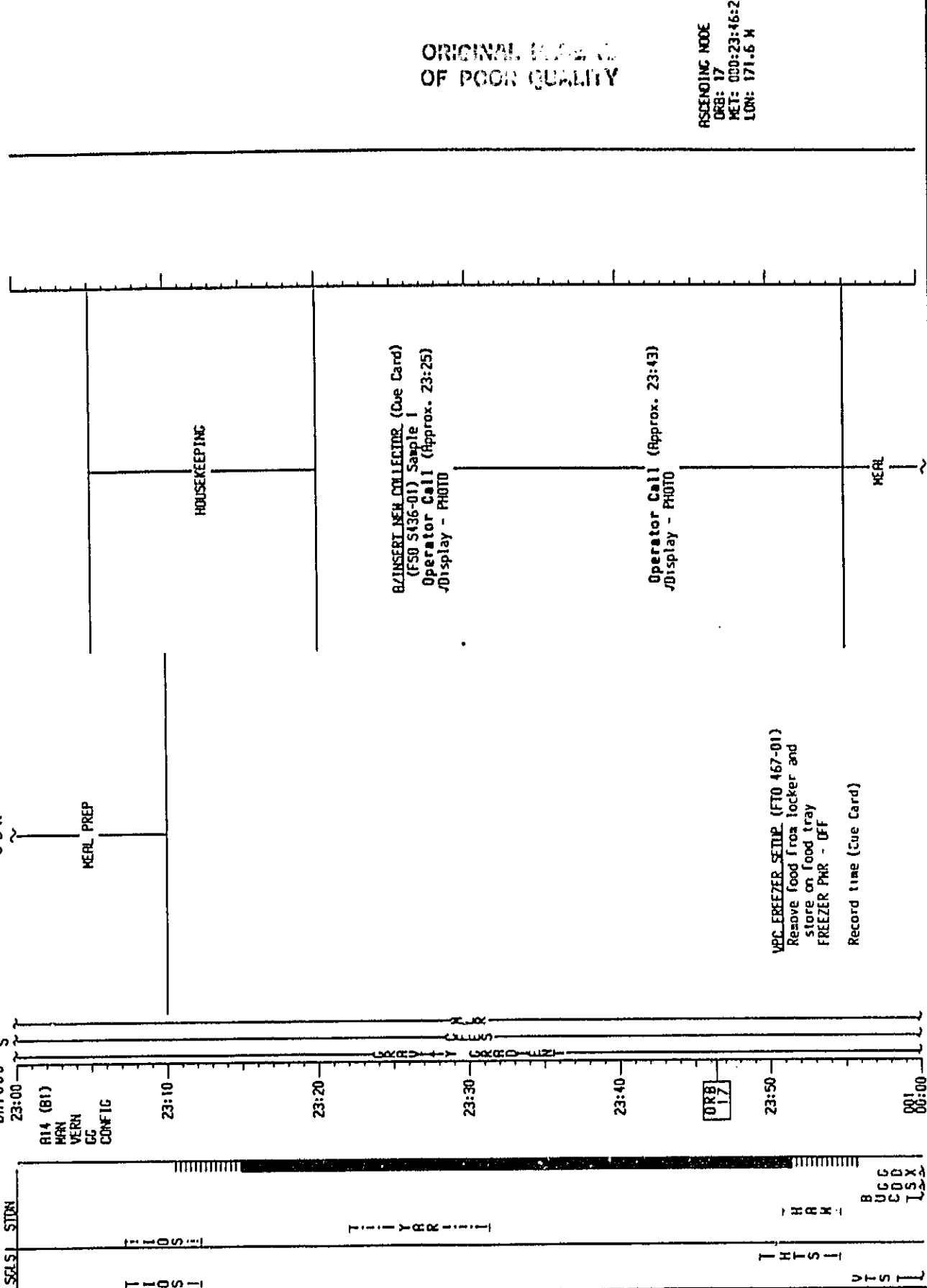
MCC

PLT

CDR

HET
DAY 000
23:00

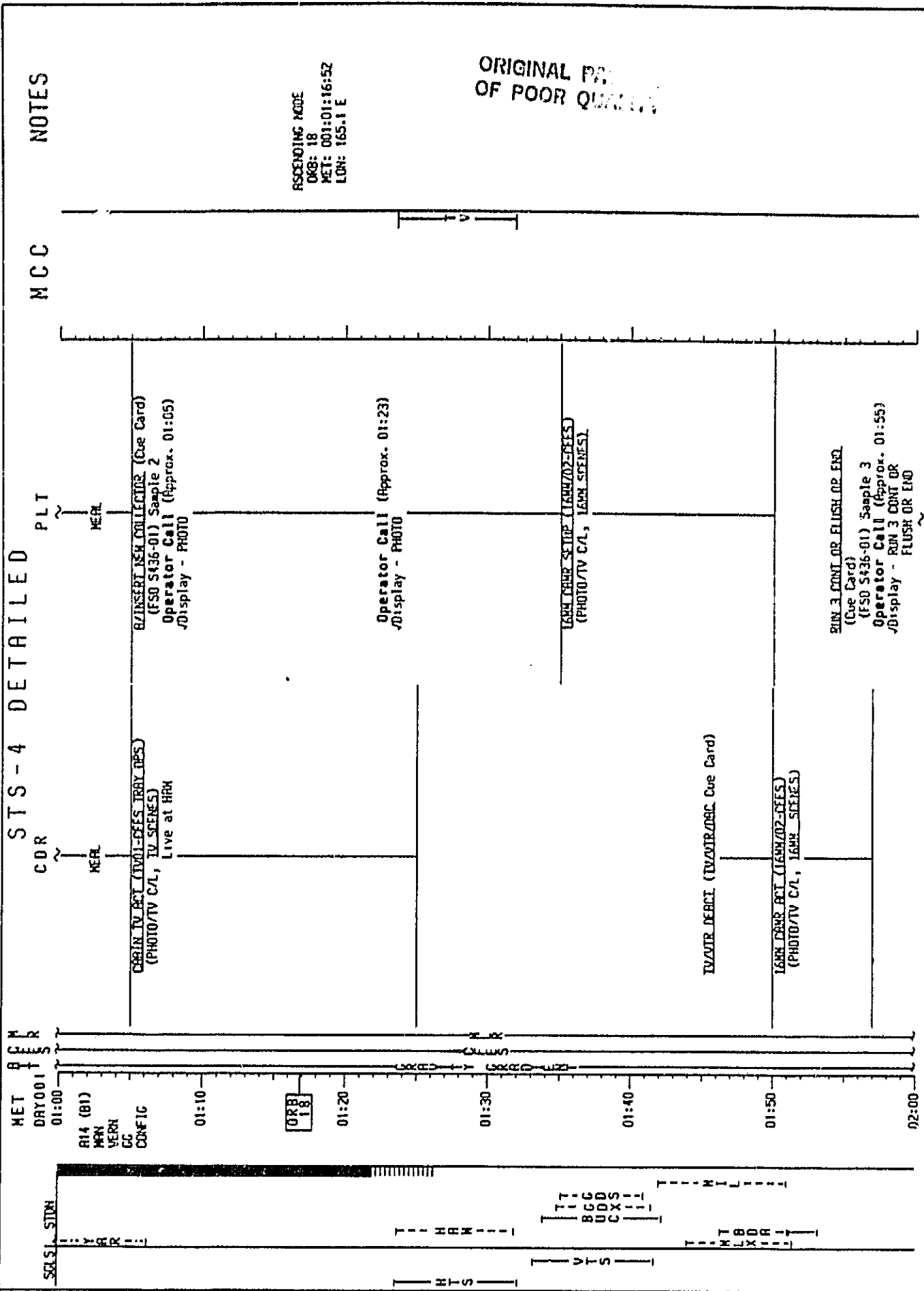
SCAL STON



ORIGINAL PLATE
OF POOR QUALITY

ASCENDING NODE
DEB: 17
MET: 000:23:46:24
LON: 171.6 N

WPC FREEZER SETUP (FTO 467-01)
Remove food from locker and
store on food tray
FREEZER PWR - OFF
Record time (Cue Card)



STS-4 DETAILED

CDR

NOTES

MCC

PLT

RUN 3 CONT OR FLUSH OR END
Operator Call (Approx. 02:02)
Display - PHOTO

WLR DECONTAMINATION (Decal)
(FSO 442-01)

Record Time: _____

ORIGINAL PAGE 13
OF POOR QUALITY

ASCENDING NODE
ORB: 19
MET: 001:02:47:21
LON: 143.0 E

TPR
BLOCK DATA
WEATHER PRO
8- 5/20-23

RAZINENT NEW SCALING (Use Card)
(FSO 3425-01) Sample 3
Operator Call (Approx. 02:45)
Display - PHOTO

MET
DAY 001
02:00

RL4 (81)
MON
VERN
CC
CONFIC

02:10

02:20

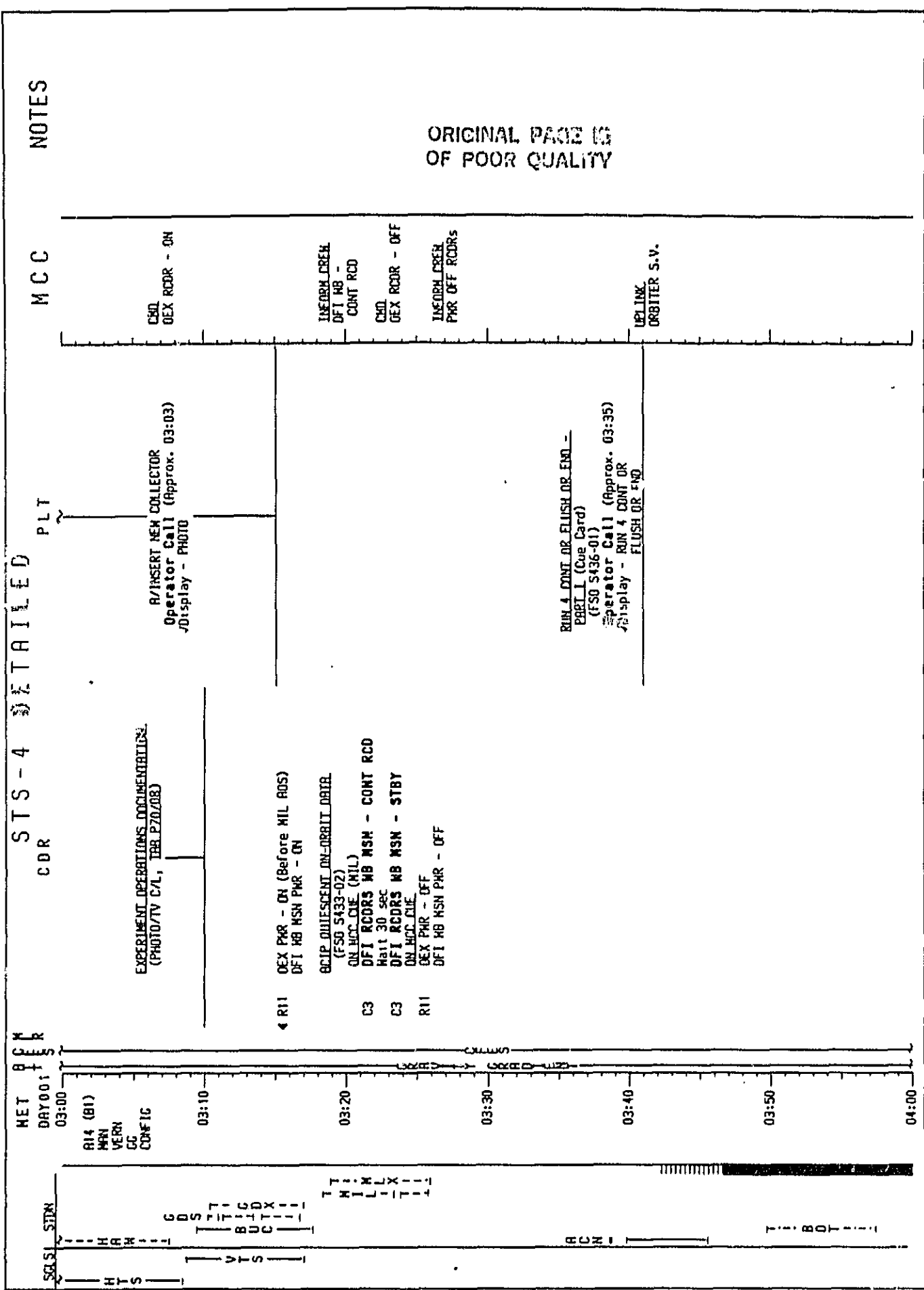
02:30

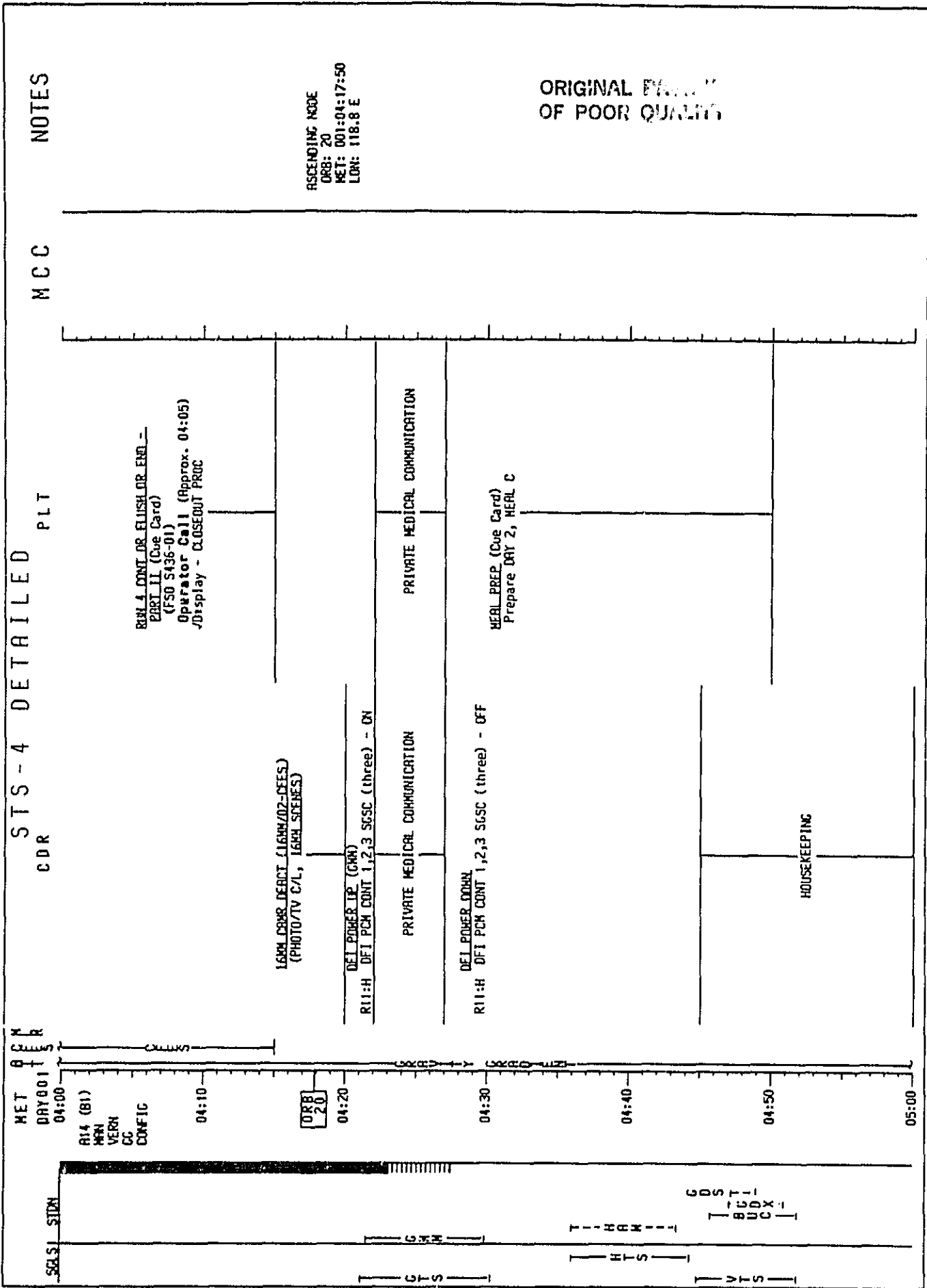
02:40

ORB
19

02:50

03:00





STS-4 DETAILED

HET
DRY001

SLIST

R14 (B1)
MEN
VERB
CC
CONFIC

PLT

16MM CORP. SETUP (16MM/05-CORP. MAPPING)
(PHOTO/TV C/L, 16MM SERIES)

MCC

NOTES

ORIGINAL PAGE 2
OF POOR QUALITY

ASCENDING NODE

ORB: 21
MET: 001:05:48:18
LON: 95.7 E

HERL

HERL

ORB
21

STATION
MET 0600
DAY 001

RT 0.2
DB 1.0
VERN
AUTO
RT 0.2
DB 1.0

HTS
HAW

I

RT 0.2
DB 1.0
VERN
AUTO
RT 0.2
DB 1.0

STS-4 DETAILED

NOTES

MCC

PLT

CDR

CH

MEAL

MEAL

CABIN TV SETUP (1002-1004/PLINE)
(PHOTO/TV C/L, TV SCENES)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, TAB P70/01)
Record 15 min

EXPERIMENT DOCUMENTATION
(OPERATIONS C/L, TAB D)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, TAB P70/04)

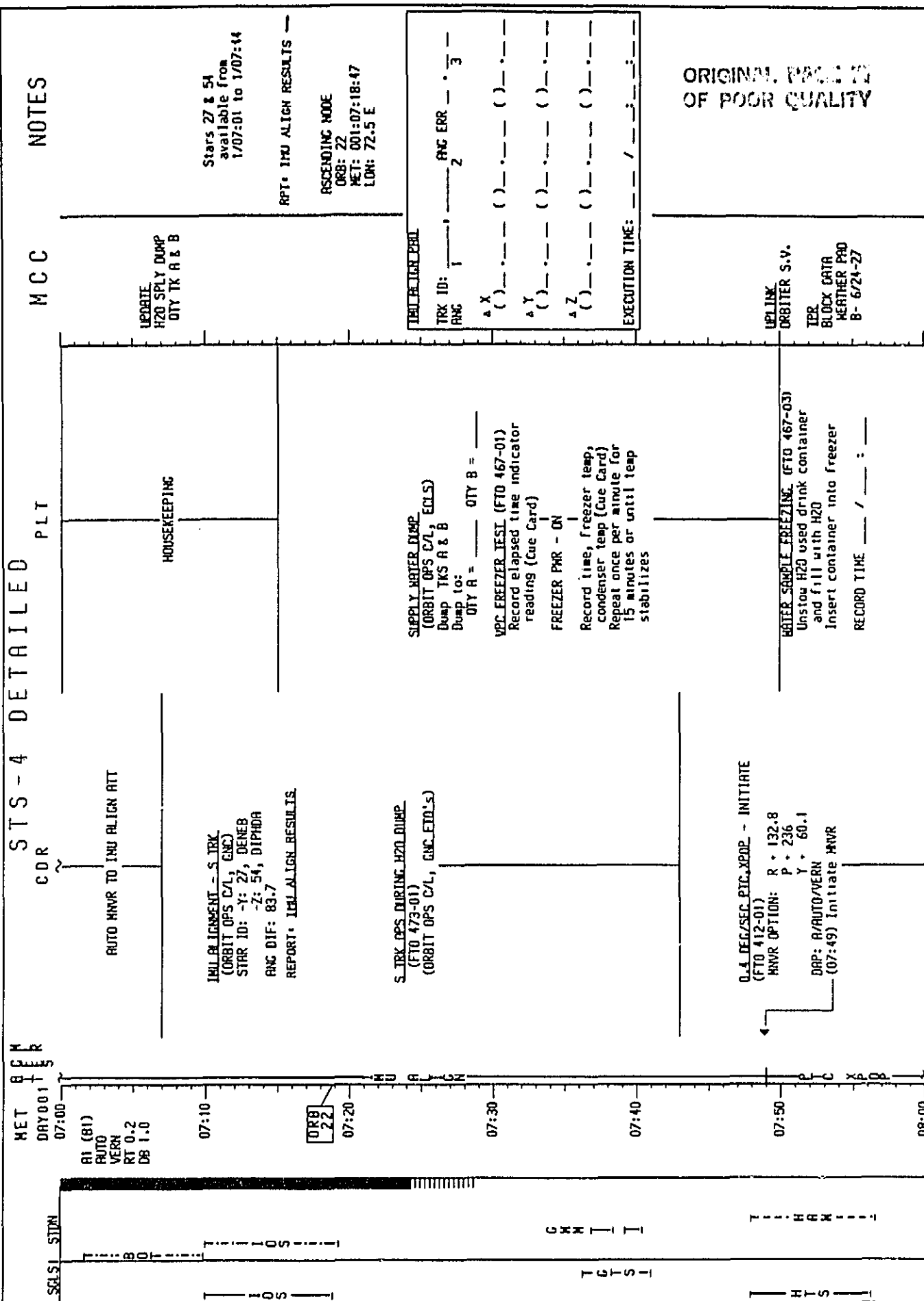
GRAVITY GRADIENT FREE TRIET OPS 2
(ORBIT OPS C/L, RCS)
(FTO 477-02)
Perform Step 3:
(VEHICLE RECOVERY & FES RESTART)

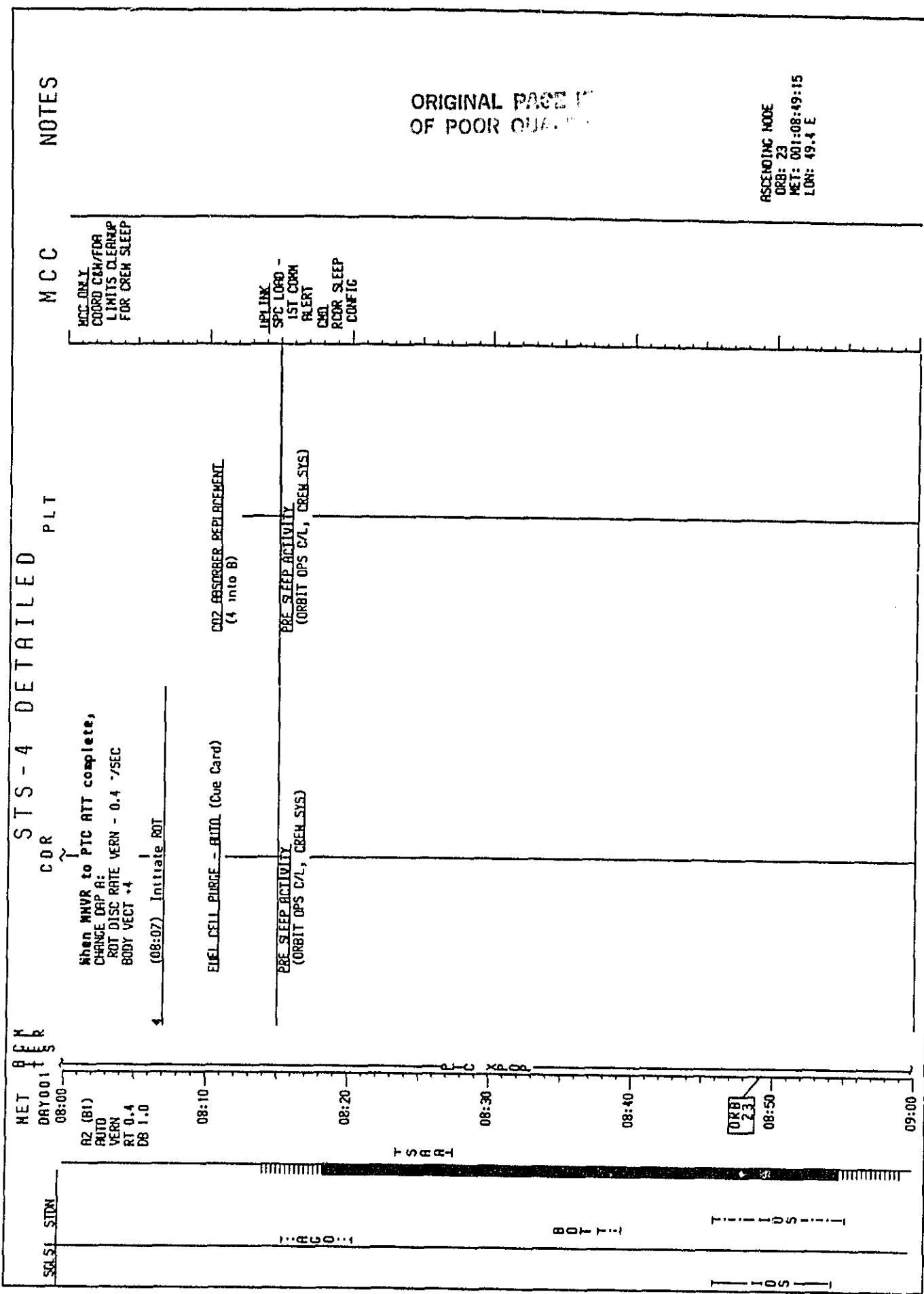
AUTO HNR TO DUAL ALIGN ATT
HNR OPTION: R - 212.5
P - 77.9
Y - 44.4
DAP: A/AUTO/VERN
(06:52) Initiate HNR

RADIATORS STOW/DEPLOY
(FTO 466-01)
(ORBIT OPS C/L, TAB P70/03)
Perform Step 1 - STOW RADIATORS

ORIGINAL PAGE 15
OF POOR QUALITY

STS-4 DETAILED





STS-4 DETAILED

MET
DAY 001

SCS1 SDN

RZ (81)
AUTO
VERH
RT 0.4
DB 1.0

NOTES

MCC

PLT

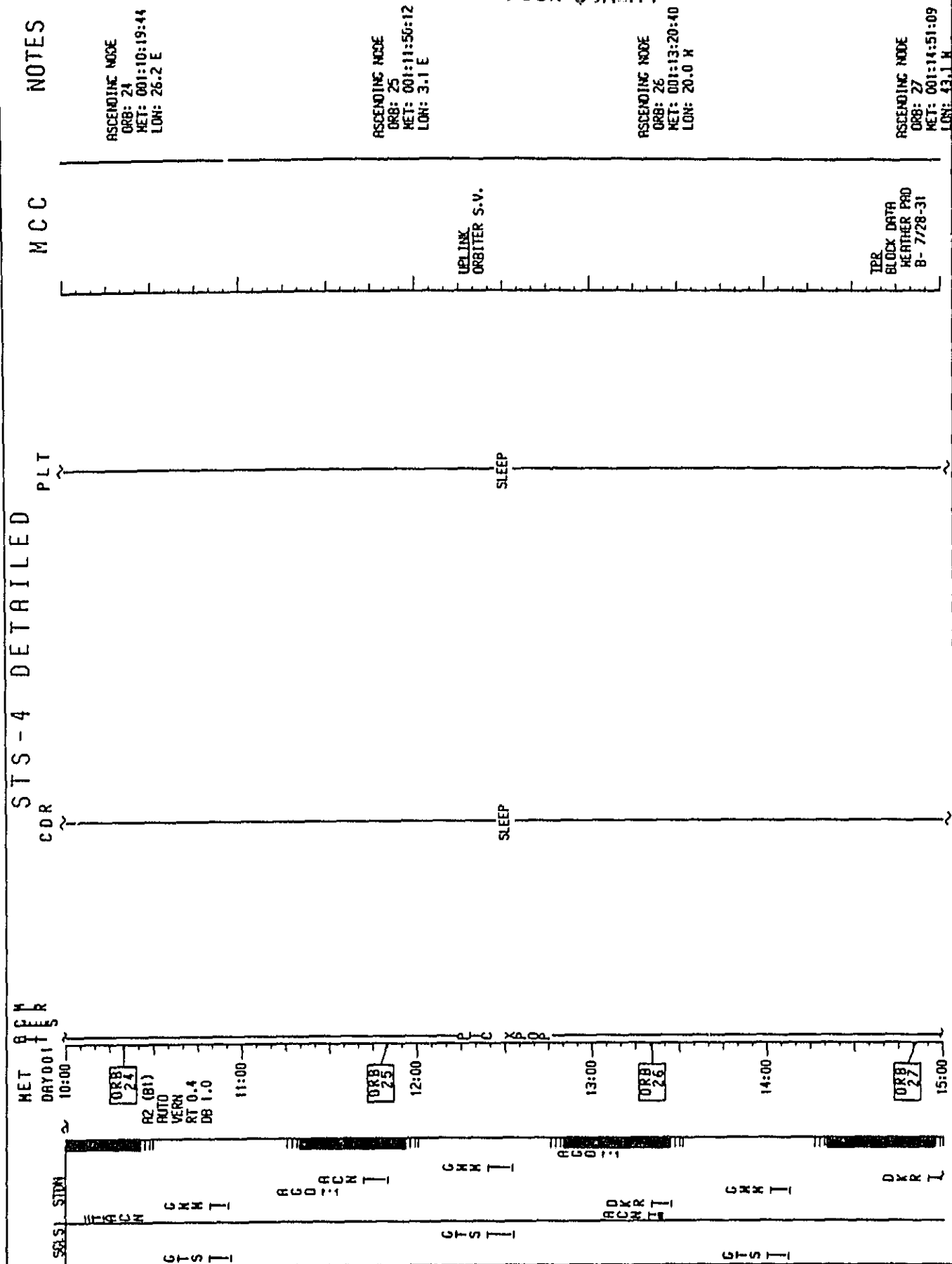
CDR

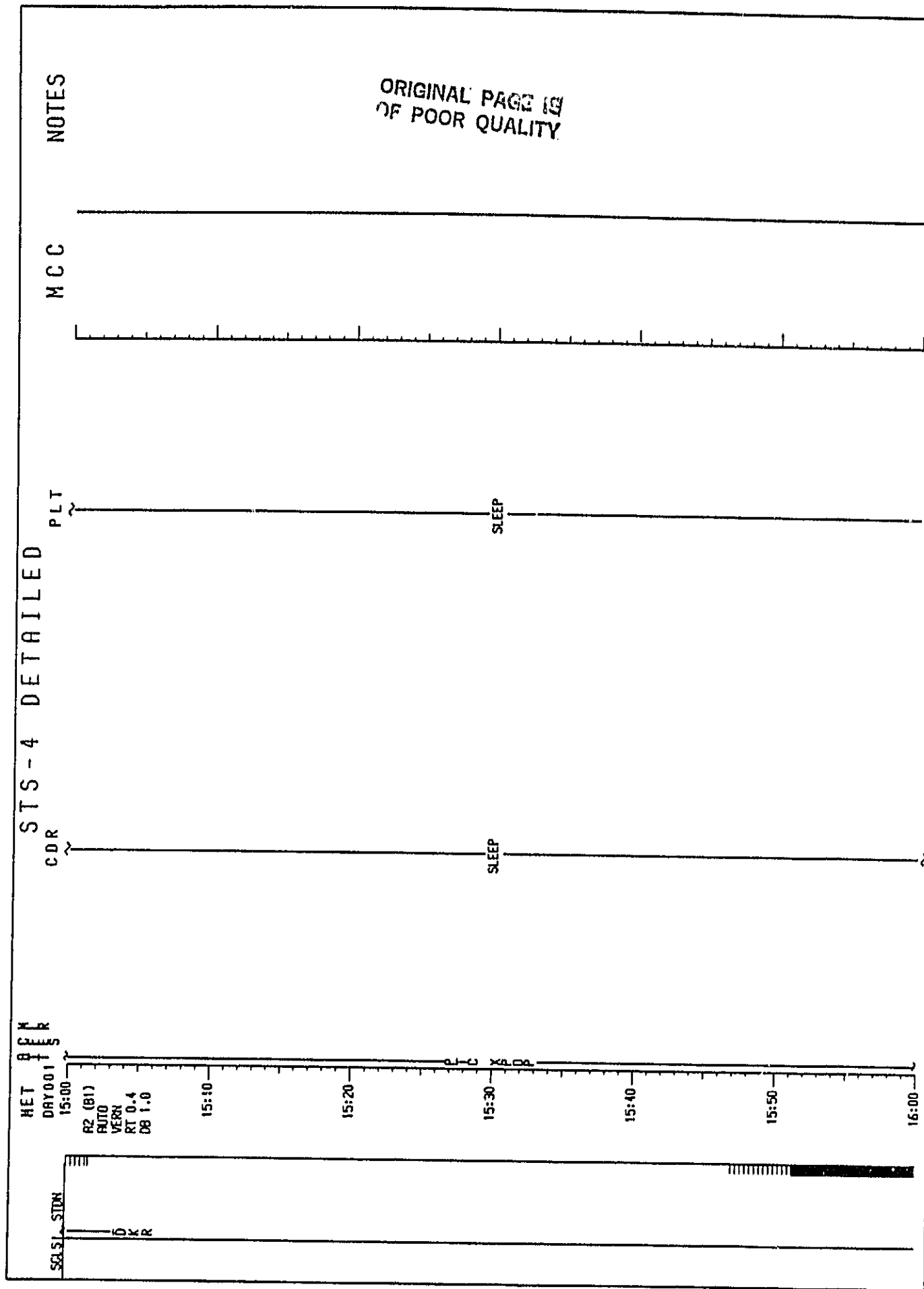
ORIGINAL PAGE 10
OF POOR QUALITY

SLEEP

SLEEP

ORIGINAL PAGE 19
OF POOR QUALITY





4-29

5/14/82 SIS/TH

FLT DAY 3

STS-4 DETAILED

NOTES

334

173

CDR

NET
DAY001

NO. 15735

ASCENDING NODE
 DRG: 28
 MET: 001:16:21.37
 LON: 66.3 W

ORIGINAL P.
OF POOR QW

UPLINK
ORBITER S.V.
CWL
RCOR AWARE
CONFIG
UPLINK
SPC LOAD -
- CLEAR COMB
ALERT

Starts!

8315

RZ (B1)
AUTO
VERH
RT 0.4
DB 1.0

028

XXXX |-----|
 XXXX |-----|
 XXXX |-----|

MET PCM
DAT 001

SGLSI STDN

RZ (B1)
AUTO
VERN
RT 0.4
DS 1.0

CDR
POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PLT

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

NOTES

MCC

ORIGINAL PATH IS
OF POOR QUALITY

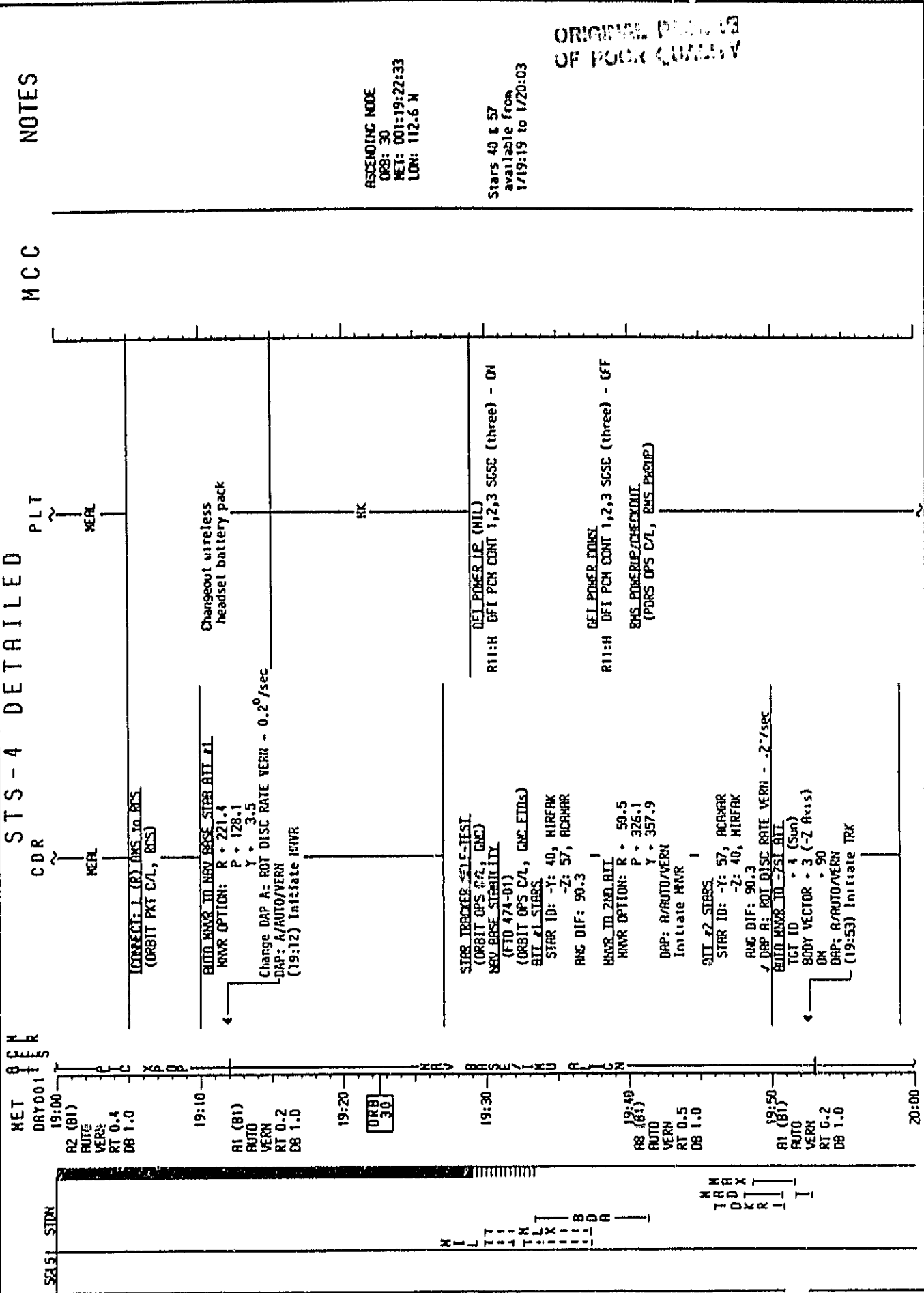
ORB
29

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

ASCENDING NODE
GRB: 29
MET: 001:17:52:05
LON: 89.4 W

STS-4 DETAILED



ORIGINAL PAGE 13 OF FOUR QUALITY

ASCENDING NODE
088: 30
MET: 001:19:22:33
LOH: 112.6 M

Stars 40 & 57 available from 1719:19 to 1720:03

STS-4 DETAILED

NET
DAY 001

STN

CDR

PLT

NOTES

NCC

20:00
A1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

20:10

20:20
(A1) B6
CONTIN
SURVEY

20:30
SUN

20:40

20:50

21:00

DUAL C2 OPS DES.
(ORBIT OPS C/L, DES)

RHS POWERUP/CHECKOUT

IECH INSERTH
(PORS OPS C/L, IECH INSERTH)

HK

IECH CONTINUATION SURVEY
(FTO 453-01)
(PORS OPS C/L, CONTIN SURVEY)

IECH CONTINUATION SURVEY
(FTO 453-01)
(PORS OPS C/L, CONTIN SURVEY)

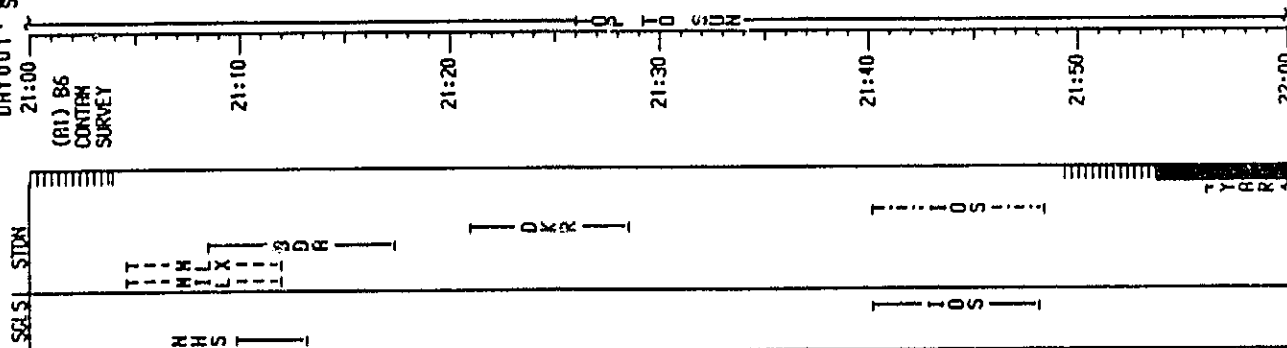
ORB
31

ORIGINAL PAGE 15
OF POC QUALITY

ASCENDING NODE
ORB: 31
MET: 001:20:53:02
LON: 135.7 X

STS-4 DETAILED

MET
DAY 001



CDR

PLT

MCC

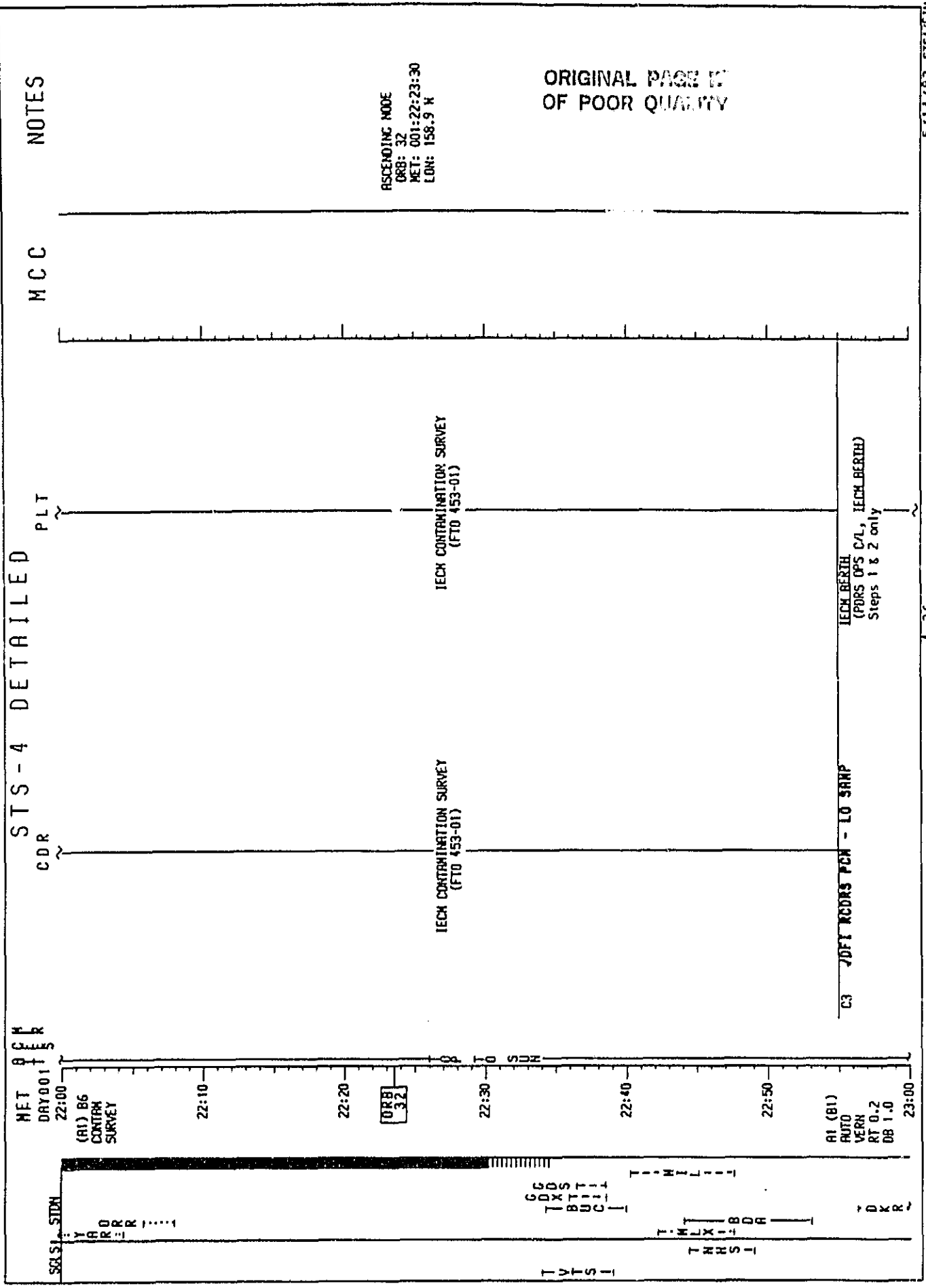
NOTES

UPLINK
ORBITER S.V.
TER
BLOCK DATA
WEATHER PAD
8- 8/32-35

ORIGINAL PAGE 13
OF POOR QUALITY

TECH CONTINUATION SURVEY
(FTO 453-01)

TECH CONTINUATION SURVEY
(FTO 453-01)



STS-4 DETAILED

CDR

PLT

NOTES

MCC

ORIGINAL PAGE 33
OF POOR QUALITY

ASCENDING NODE
ORB: 33
MET: 001:23:53:58
LON: 177.9 E

1-37

MET 001
DAY 001
23:00

R1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

23:10

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

23:30

23:40

23:50

002:00

SOCSL STOW

D K R I

B O T T I O S T I

I D S T I

T I I Y A R I I I

H A M T L

H T S I

TECH BERTH

HERL PREP (Cue Card)
Prepare DAY 3, HERL B

Change DAP B: DB RIT VERN - 0.1'DB
AUTO MNVR ID - XSL RIT (FTO 412-01)
MNVR OPTION: R * 192
P * 278.9
Y * 336.8

DAP: B/AUTO/VERN
(23:18) Initiate MNVR

RADIATORS SIGN/DEPLOY

FTO 466-01)
(ORBIT OPS C/L. ELBD EIDJ)
Perform Step 2 - DEPLOY RADIATORS

PRIVATE MEDICAL COMMUNICATION

PRIVATE MEDICAL COMMUNICATION

CABIN TV ACT (TV02-TECH/PLINE)
(PHOTO/TV C/L, TV STERES)
VTR

VCC FREEZER TEMP READLINE
(FTO 467-02)
Record time, freezer temp,
condenser temp (Cue Card)

ORB 33

STS-4 DETAILED

MET 00:00
DAY 002

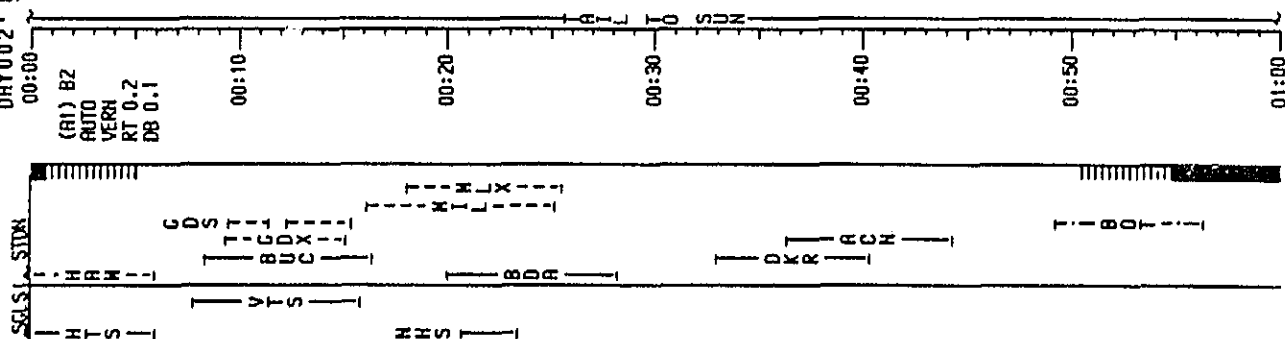
NOTES

MCC

PLT

CDR

ORIGINAL PAGE 17
OF POOR QUALITY



STS-4 DETAILED

MET
01:00
01:10
01:20
01:30
01:40
01:50
02:00

CDR

PLT

NOTES

MCC

SOLST STDN

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

R11 (B5)
PLUME
SURVEY

ORB
34

TECH INSERT
(PDRS OPS C/L, TECH INSERT)
Steps 3 & 4 only

TECH PLUME SURVEY
(FTD 454-01)
(PDRS OPS C/L, PLUME SURVEY)

TECH PLUME SURVEY
(FTD 454-01)
(PDRS OPS C/L, PLUME SURVEY)

SDS
TIGAX
BUC
TIGAX
BUC
TIGAX
BUC

UPLINK
ORBITER S.V.

ASCENDING NODE
ORB: 31
MET: 002:01:24:26
LDN: 154.8 E

ORIGINAL PAGE 13
OF POOR QUALITY

STS-4 DETAILED

MET ACN
DAY002

SCSI SUM
WMB
ILD
LXR

02:00
R11 (B5)
PLUME
SURVEY

02:10

02:20

02:30

02:40

02:50

03:00

ORB
35

NOTES

MCC

PLT

CDR

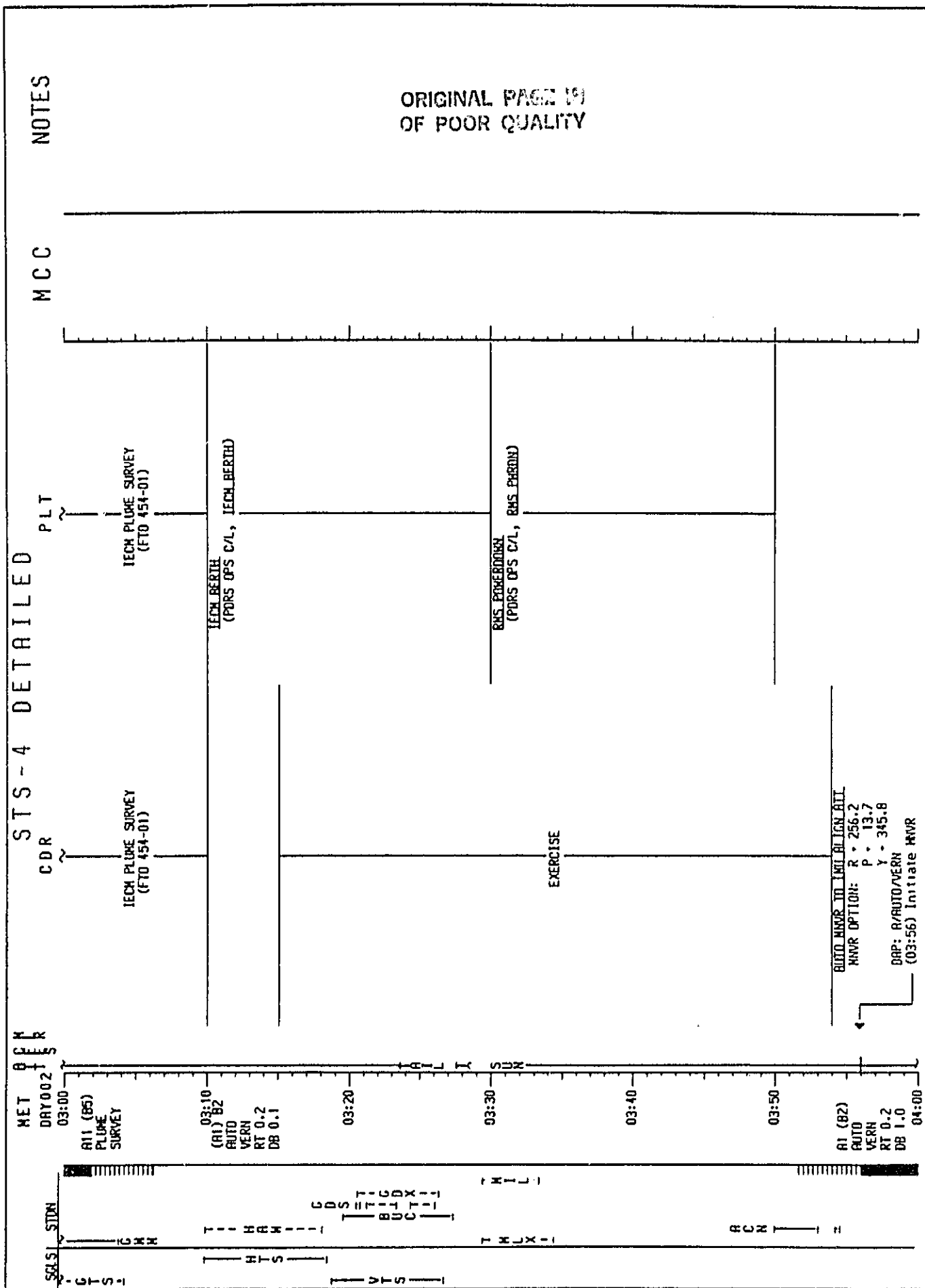
ORIGINAL PAGE IS
OF POOR QUALITY

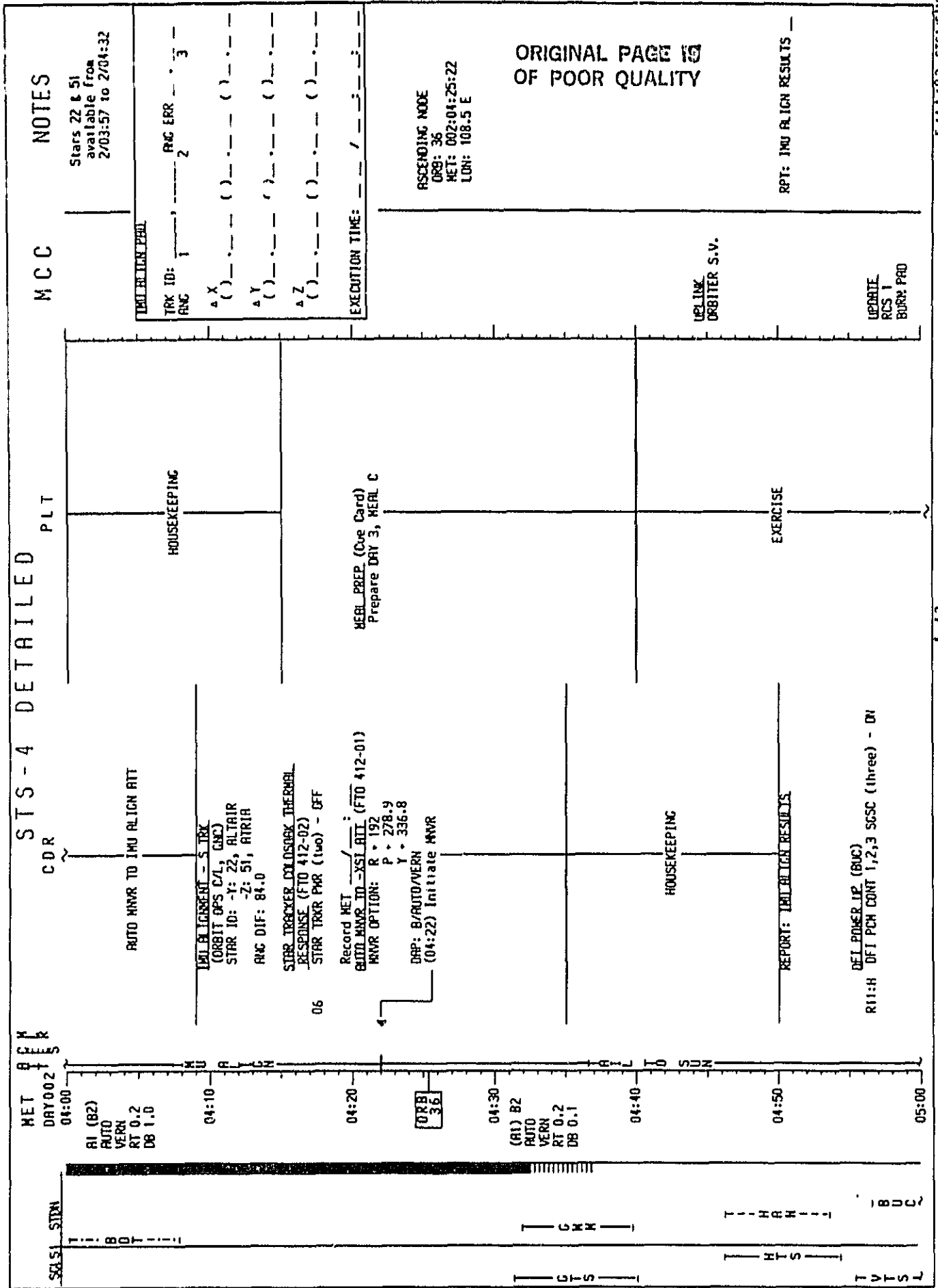
TECH PLUME SURVEY
(FTD 454-01)

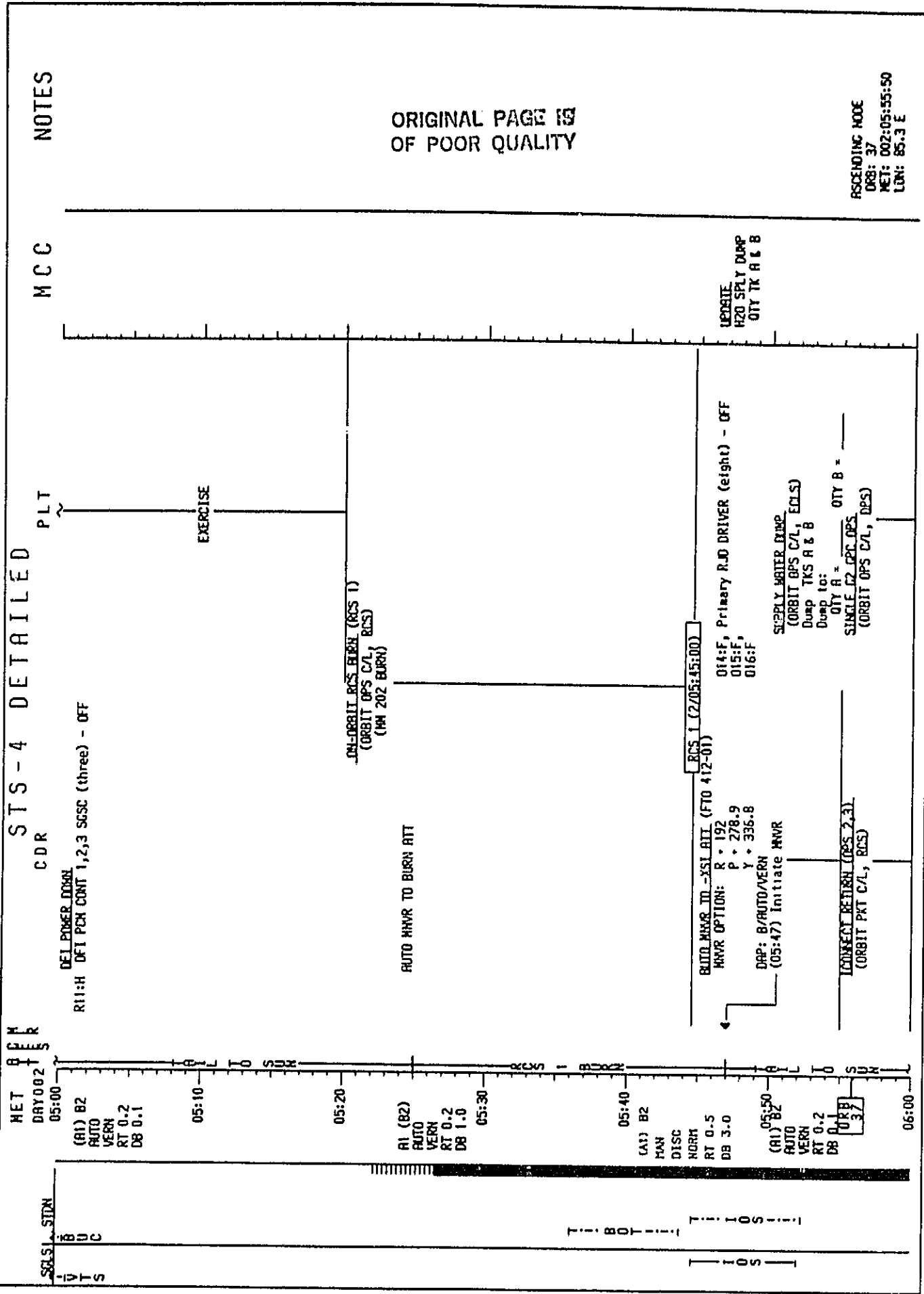
TECH PLUME SURVEY
(FTD 454-01)

ASCENDING NODE
ORB: 35
MET: 002:02:54:54
LON: 131.6 E

TPR
BLOCK DATA
WEATHER PRO
B- 9/36-39







ORIGINAL PAGE 19
OF POOR QUALITY

ASCENDING NOOE
ORB: 37
MET: 002:05:55:50
LON: 85.3 E

5/11/82 STS4/FIN

4-43

NET
DAY002

NOTES

334

179

CR

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

11

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ORIGINAL PAGE IS
OF POOR QUALITY

THE

1

REF ID: A66522

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MET 0002
DAY 002

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

STIM

CDR
PLT

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IRR P/D02)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IRR P/D06)

NOTES

MCC

MCC ONLY
COORD CEN/FDA
LIMITS CLEARUP
FOR CREW SLEEP

EUEL CELL PIECE - RIND (Due Card)

CO2 ABSORBER REPLACEMENT
(5 into A)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ASCENDING NODE
ORB: 38
MET: 002:07:26:18
LON: 62.2 E

ORIGINAL OF FOUR COPIES

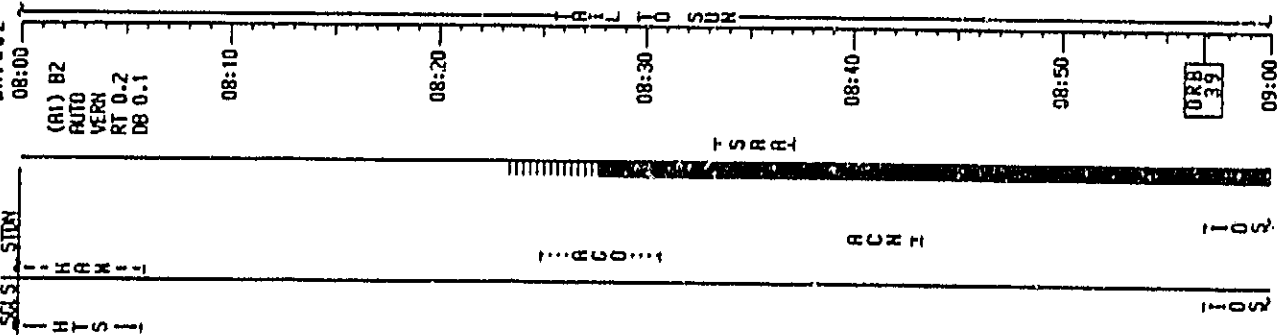
DIPLINK
SPC LOAD -
1ST COMM
ALERT
CMD
RCOR SLEEP
CONFIC

5711782 SISTR/FIN

1-15

STS-4 DETAILED

MET
DAY 002



NOTES

MCC

PLT

CDR

PRE SLEEP ACTIVITY

PRE SLEEP ACTIVITY

SLEEP

SLEEP

ORIGINAL PAGE 13
OF POOR QUALITY

TPR
BLOCK DATA
WEATHER PRO
B-10/40-43

ASCENDING NODE
088: 39
MET: 002:08:56:46
LON: 39.0 E

5/14/82 STS-4 IN

4-46

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47

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CCM

PLT

20

**UPLINK
ORBITER S.V.**

43375

335

(A1) 82
RJT
VER
RT 0.2
DB 0.1

ROLLS 15135

U.S. 1-1-1

五五五 卜一

— ۵۱۵ —

1-54-57-1

STS-4 DETAILED

NET 1
DAY002
9
CUES
M-R

NOTES

CCM

PLI

COR

ASCENDING NODE
ORB: 40
MET: 002:10:27:14
LON: 15.9 E

ASCENDING ACFT
ORR: 41
MET: 002:11:57:41
LOW: 7.2 H

ESTABLISHING NODE
 ORB: 42
 MET: 002:13:28:09
 LON: 30.3 N

ASCENDING NO. 1
 Q28: 43
 MET: 002
 LON: 53.4

**UPLINK
ORBITER S.V.**

IP3
BLOCK DATA
WEATHER PAD
2-11/44-47

**ORIGINAL PAGE IS
OF NEGATIVE**

100-5-1

5/14/82 STS4/FIN

STS-4 DETAILED

MET
DAY 002

SOL STDA

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

DKR M A D T

PLT

SLEEP

CDR

SLEEP

NOTES

MCC

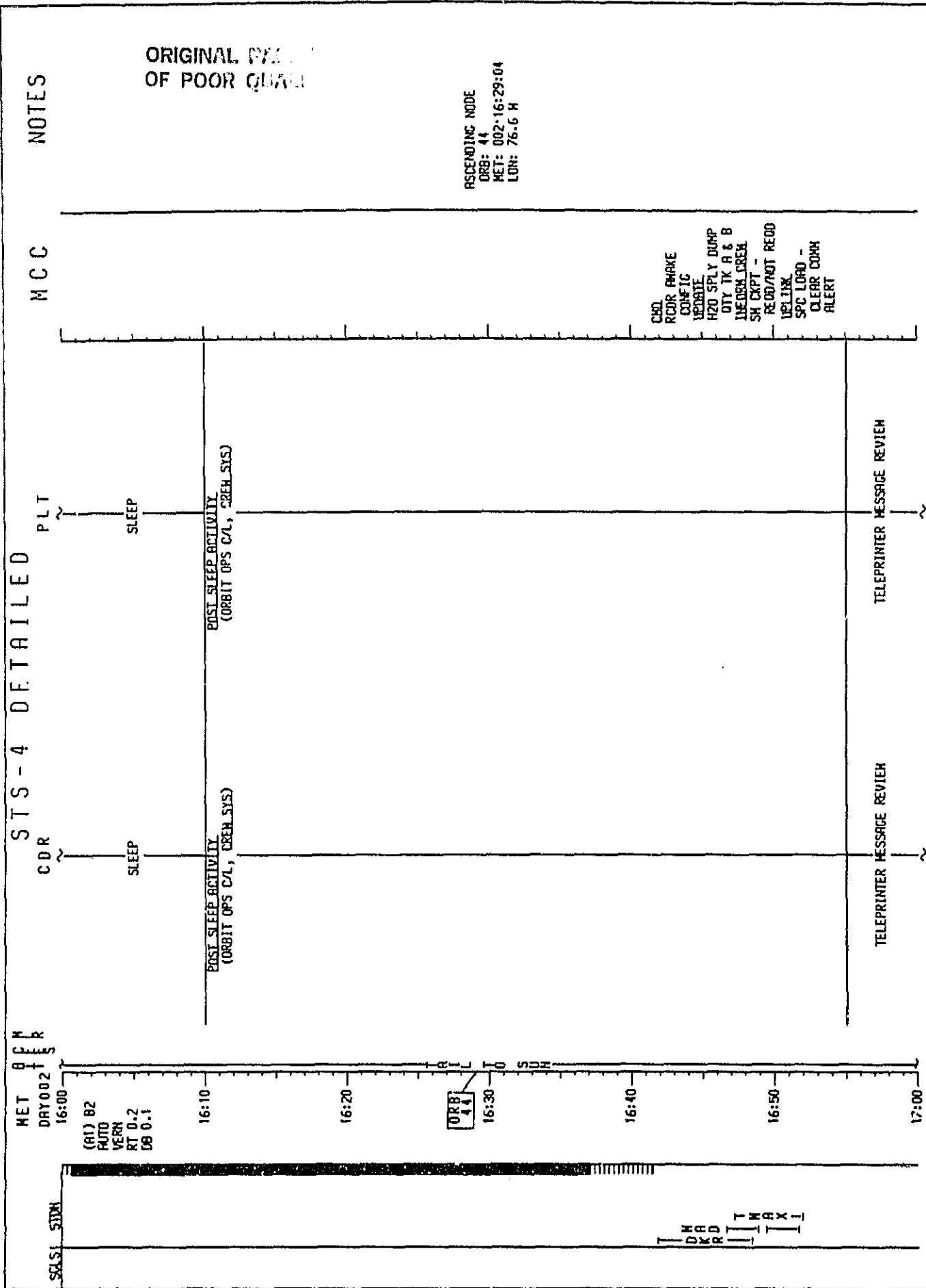
ORIGINAL PAGE 10
OF POOR QUALITY

4-49

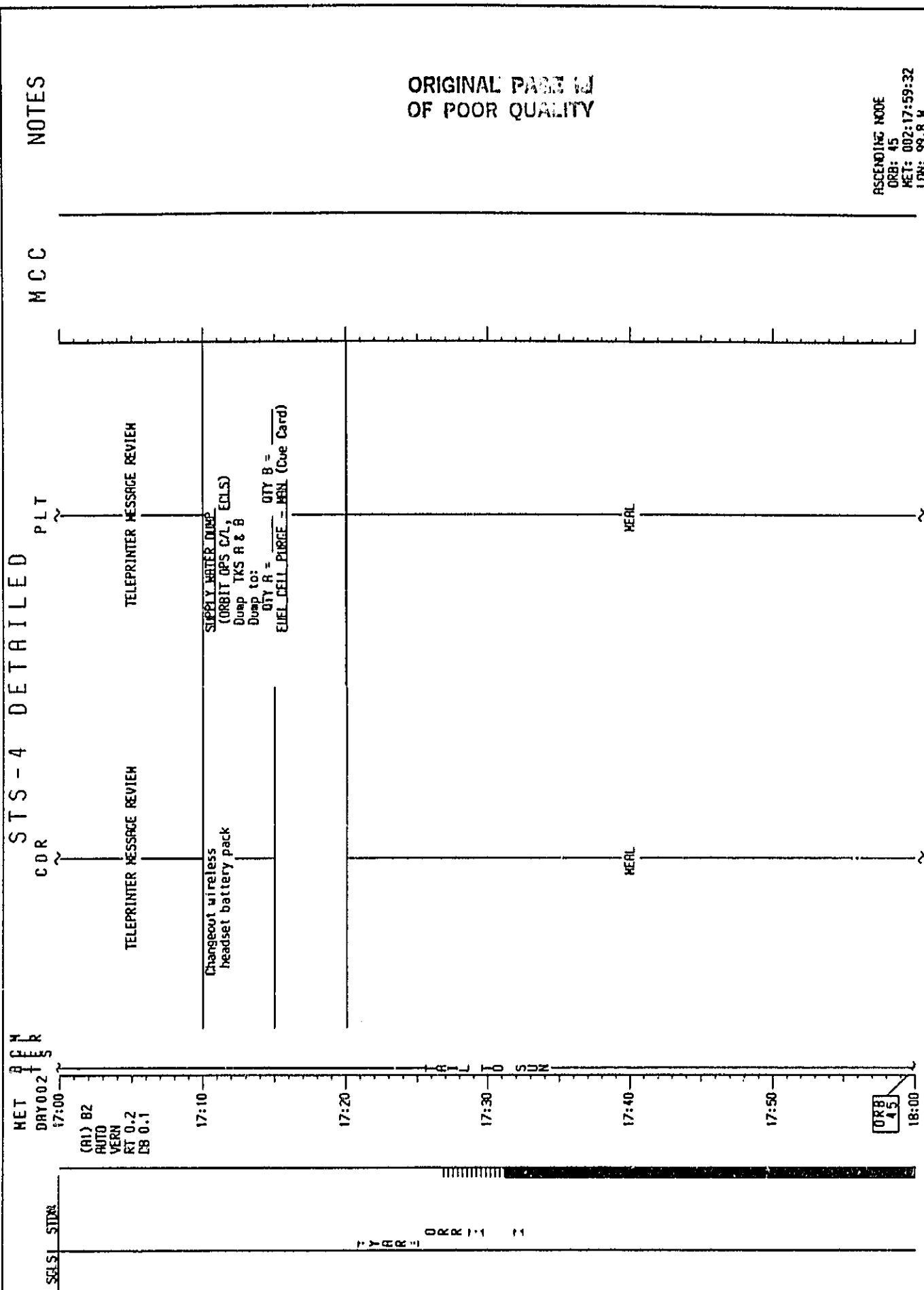
5/14/82 SISV/EN

FLT DAY 4

STS-4 DETAILED



STS-4 DETAILED



ORIGINAL PAGE 14
OF POOR QUALITY

ASCENDING NODE
ORB: 45
MET: 002:17:59:32
LON: 99.8 N

MET
DRY002
17:00

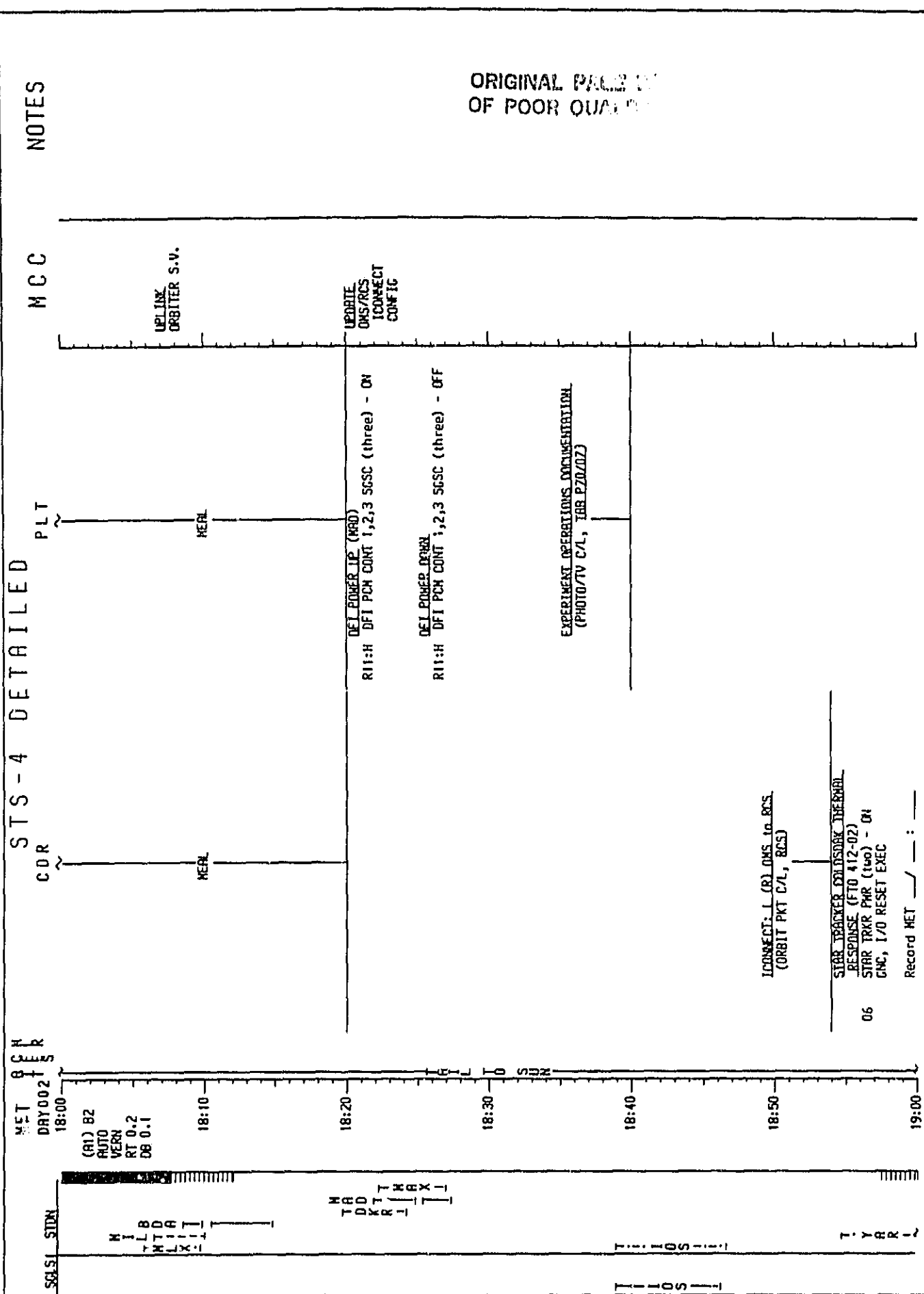
(R1) B2
AUTO
VERN
RT 0.2
EB 0.1

SELSI STDN

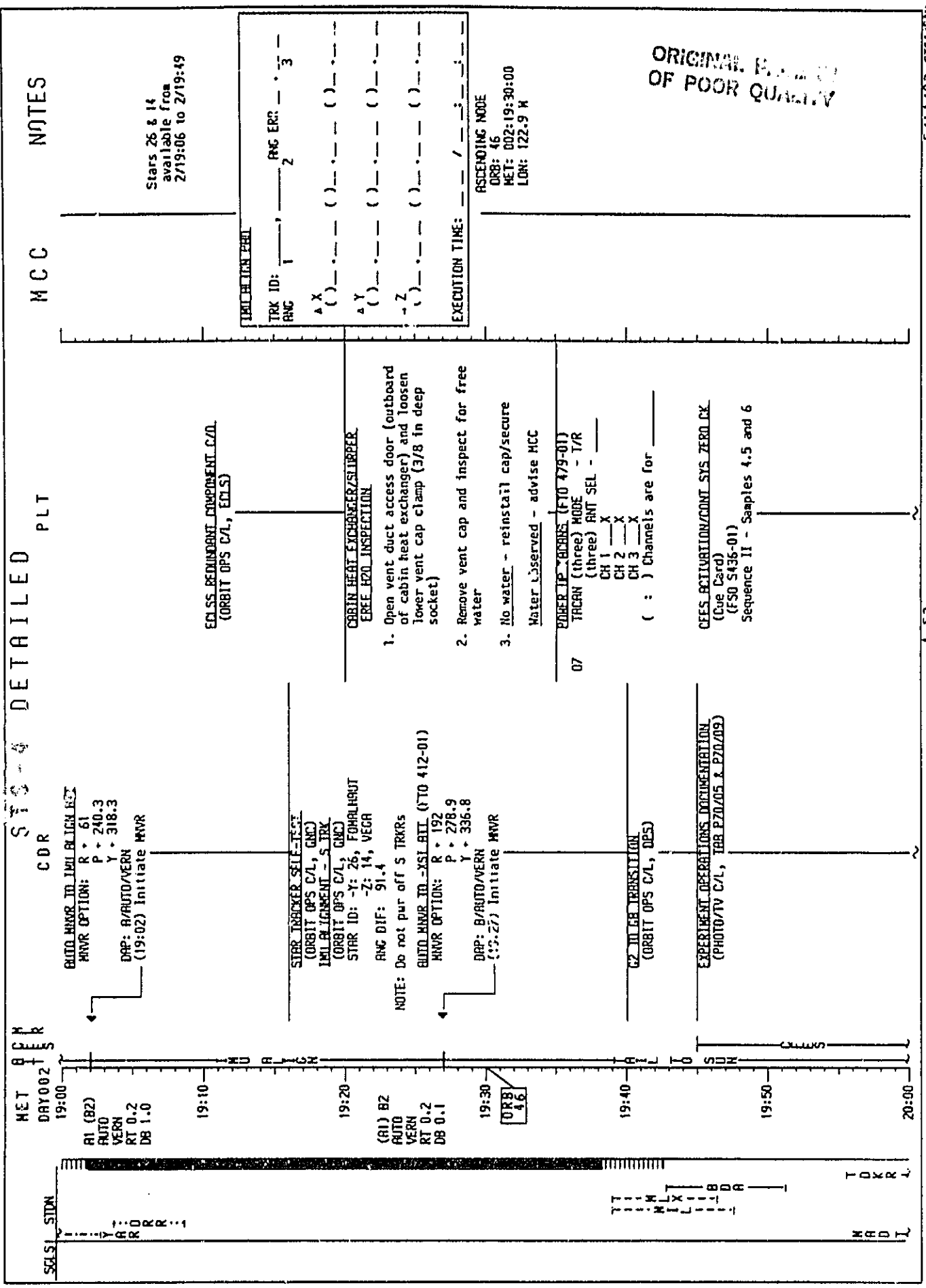
ORR 1-1

ORB
45
18:00

STS-4 DETAILED

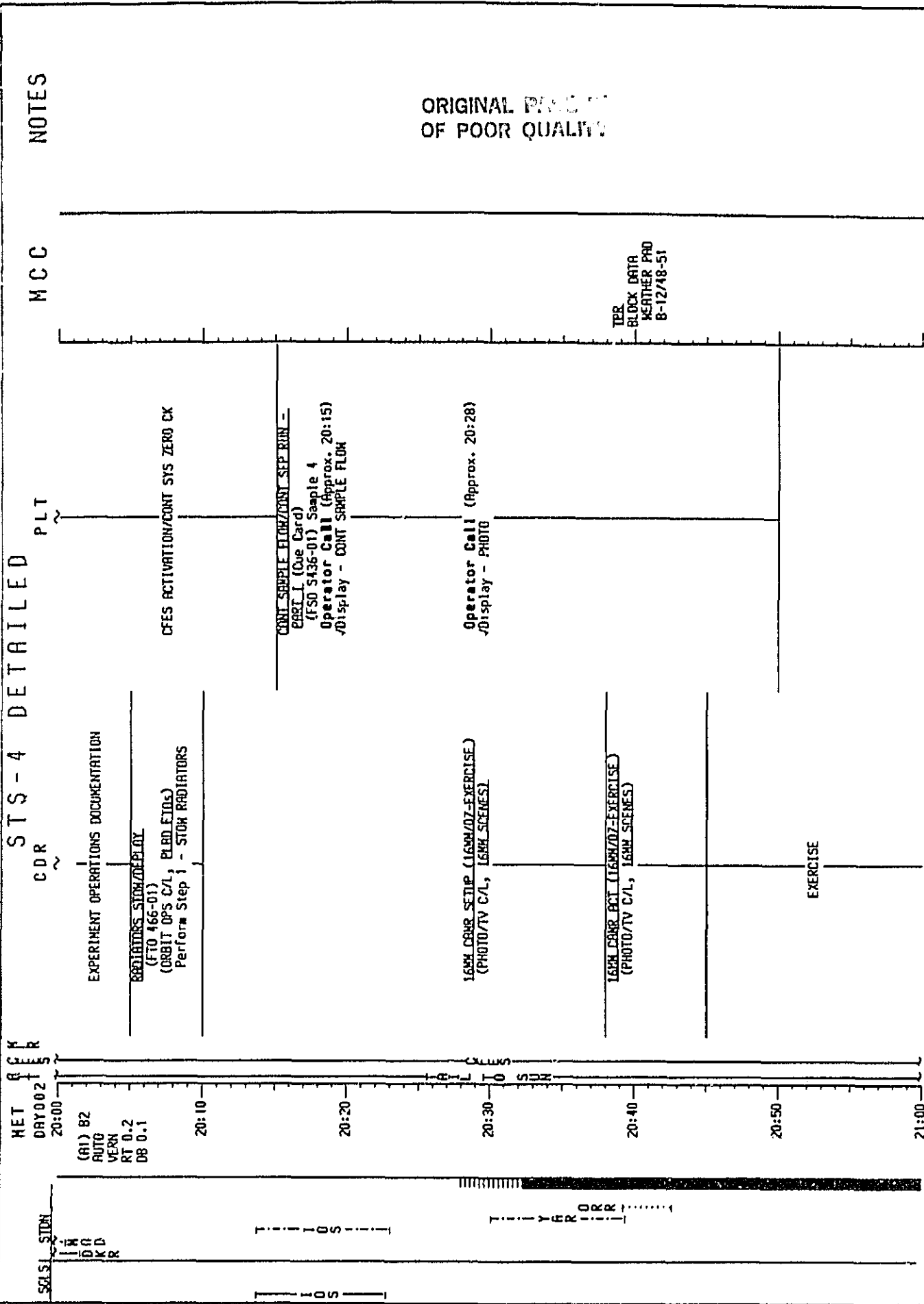


ORIGINAL PAGE 1
OF POOR QUALITY



ORIGINAL. ECLSS
OF POOR QUALITY

STS-4 DETAILED



NOTES

CCM

PLT

CDR

13H
200Y002

11

1

ASCENDING NODE
ORB: 47
MET: 002:21:00:27
LON: 146.0 W

ORIGINAL PAGE IS
OF POOR QUALITY

EXERCISE

16th CDR DEACT (16M/07-EXERCISE)
(PHOTO/TV C/L, 16M SCENES)

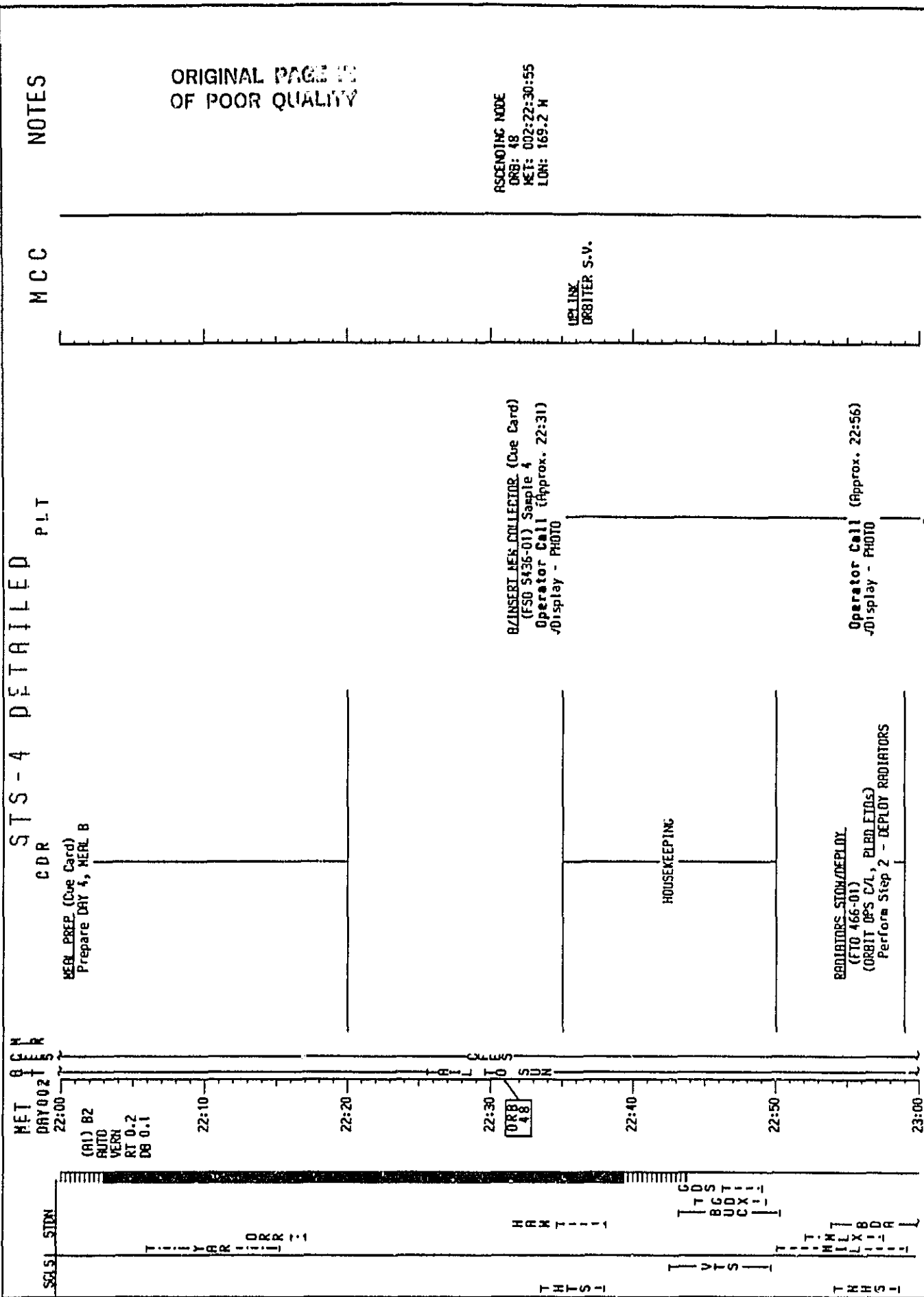
HOUSEKEEPING

CONT SEP EIML - PART II (Cue Card)
(FSO 5436-01) Sample 4
Operator Call (Approx. 21:44)
✓Display - PHOTO

4-55

714515-2819115

STS-4 DETAILED



STS-4 DETAILED

CDR

MET 0000
DAY 002

NOTES

MCC

PLT

R/INSERT NEW COLLECTOR

MEAL

MEAL

RUN 5 COUNT OR FLUSH OR ENL
(Cue Card)
(FSD 5435-01) Sample 5
Operator Call (Approx. 23:42)
Display - RUN 5 COUNT OR
FLUSH OR ENL
Operator Call (Approx. 23:49)
Display - PHOTO

SCS1 STON

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

23:10

23:20

23:30

23:40

23:50

003
00:00

B D A

DA

KCN

P B O T I

T I I Y A R I I I

STS-4 DETAILED

MET 8 C M
DAY 003

NOTES

MCC

PLT

CDR

ASCENDING NODE
ORB: 49
MET: 003:00:01:22
LON: 167.6 E

RUN 5 CONT OR FLUSH OR END

00:00

00:10

00:20

00:30

00:40

00:50

01:00

00:00

00:10

00:20

00:30

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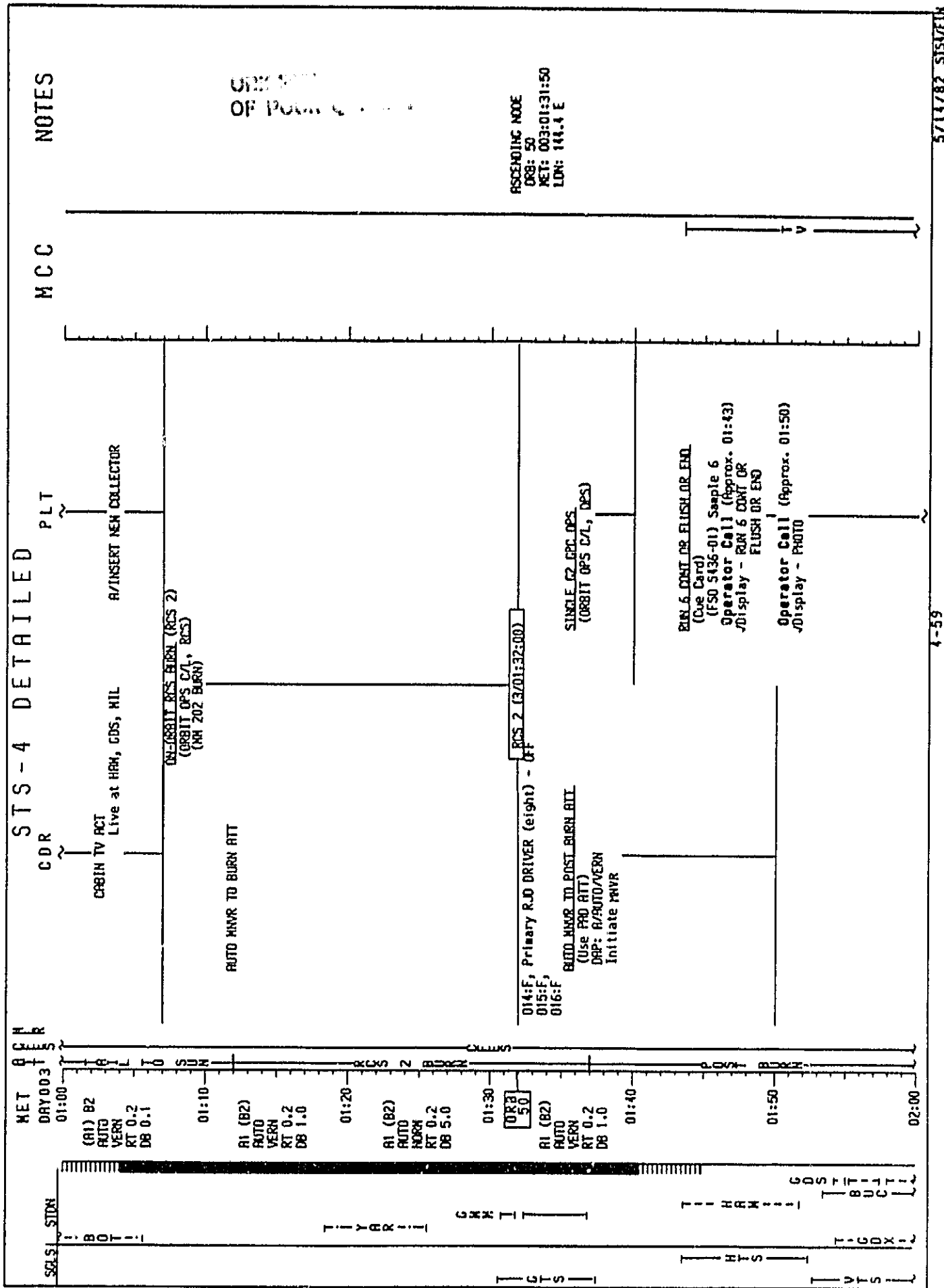
00:10

00:20

00:30

00:40

00:50



STS-4 DETAILED

CDR

PLT

NOTES

MET
DAY 003

SCSLS
VTS
BDDTT
UXXS
C

(A1) B2
AUTO
VERN
RT 0.2
DS 0.1

BLVD MWR ID - XSL AIL (FTO 412-01)
MWR OPTION: R - 192
P - 278.9
Y - 336.8
DAP: B/AUTO/VERN
(02:07) Initiate MWR

RUN 6 CONT OR FLUSH OR END

VEE FREEZER TEMP. READING
(FTO 467-02)
Record time, freezer temp,
condenser temp (Due Card)

IVZVR DEBEL (IVZVR/DEB Due Card)

DEL POWER UP (ACH)
R11:H DEL PCH CONT 1,2,3 SCSC (three) - ON

DEL POWER DOWN
R11:H DEL PCH CONT 1,2,3 SCSC (three) - OFF

QUINSEPT AER COLLECTOR (Due Card)
(FSO 5435-01) Sample 6
Operator Call (Approx. 02:33)
Display - PNC

Operator Call (Approx. 02:58)
Display - PNC

ORIGINAL PAGE 10
OF POOR QUALITY

STS-4 DETAILED

MET BCK

SQSI STDN

DAY003

CDR

PLT

NOTES

MCC

RESONATING MODE
DBS: 51
MET: 003:03:02:17
LEN: 121.3 E

TER
BLACK DATA
WEATHER PWD
3-13/52-55

A/INSERT NEW COLLECTOR

HOUSEKEEPING

REEL PREP (Cue Card)
Prepare DRH 4, MEAL C

EXERCISE

RUN 7 CONT OR FLUSH OR END
ERR 1 (Cue Card)
(FSD 5436-01)
Operator Call (Approx. 03:44)
Display - RUN 7 CONT OR
FLUSH OR END

ORIGINAL RECORD
OF POOR QUALITY

NET		CDR		PLT		MCC		NOTES	
<p>04:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>	
<p>04:10 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:10 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:10 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:10 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:10 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>	
<p>04:20 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:20 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:20 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:20 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:20 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>	
<p>04:30 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:30 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:30 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:30 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:30 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>	
<p>04:40 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:40 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:40 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:40 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:40 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>	
<p>04:50 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:50 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:50 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:50 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>04:50 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>	
<p>05:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>05:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>05:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>05:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>		<p>05:00 R1 (B2) AUTO VERN RT 0.2 DB 1.0</p>	

RUN 7 CONT OR FLUSH OR END -
PART 11 (Cue Card)
(FSO 5436-01)
Operator Call (Approx. 04:00)
Display - CLOSEOUT PROC

AUTO MWR TO LML FLY/CL/NAV ATT L
(FTO 476-01)
MWR OPTION: R + 252.9
P + 252.5
Y + 348.9
DAP: A/AUTO/VERN
(04:05) Initiate MWR

IML ALIGNMENT - S TRK
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 41, DENEbola
-Z: 34, HIPPLACIOUS
RNG DIF: 88.6

BACKUP ORBITER NEW TEST (FTO 476-01)
ENC 22 S TRK/COAS C/L
S TRK -Y, -Z: TERM IDLE - ITEM 9, 10 (u)
SHUTTER MAN OP - ITEM 15, 16 (u)

AUTO MWR TO LML FLY/CL/NAV ATT L
MWR OPTION: R + 246.8
P + 288.6
Y + 351
DAP: A/AUTO/VERN
(04:26) Initiate MWR (After Star 41 LOS)
STAR ID: -Y: 20, ARCTURUS
-Z: 17, ACKOX

After Star 17 & 20 LOS
ENC 22 S TRK/COAS C/L
SHUTTER MAN OP - ITEM 15, 16 (no u)
S TRK -Y, -Z: STAR TRK - ITEM 3, 4 (u)

AUTO MWR TO LML FLY/CL/NAV ATT L
MWR OPTION: R + 192
P + 278.86
Y + 336.84
DAP: B/AUTO/VERN
(04:39) Initiate MWR

HOUSEKEEPING

CONNECT RETURN (OPS 2, 31)
(ORBIT PKT C/L, RCS)

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =

MEAL

UPDATE
H2O SPLY DUMP
QTY TK A & B

ASCENDING NODE
ORB: 52
MET: 003:04:32:45
LON: 98.2 E

TELEMETRY PERI
TRK ID: 1
RNG 2
RNG ERR 3
X ()
Y ()
Z ()
EXECUTION TIME: /

STS-4 DETAILED

NOTES

MCC

PLT

CDR

MET
DAY 003

SCS
HTS

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

05:10

05:20

05:30

05:40

05:50

06:00

ORIGINAL PAGE IS
OF POOR QUALITY

RPT: IMU ALIGN RESULTS

EXPERIMENT DEFERRATIONS DOCUMENTATION
(PHOTO/TV C/L, TBR P70/10)

REPORT: IMU ALIGN RESULTS
RECOMMENDATION: C/L LAMP TEST
(ORBIT OPS C/L, EPS)

5/14/82 STS4/FIN

NET 0031

STS-4 DETAILED

PLT

CDR

SCS

DAY 0031

EIRE/SNORE DETECT/SUPPRESS TEST
(ORBIT OPS C/L, EES)

Q12 RESORDER REPLYMENT
(6 into 8)

UPB
53

(AT) B2
AUTO
RT 0.2
DB 0.1

FUEL CELL PUSGE - AUTO (Cue Card)

06:10

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

06:20

06:30

06:40

06:50

07:00

MCC

MCC ONLY
CDR/CA/EDA
LIMITS CLEANUP
FOR CREW SLEEP

NOTES

ASCENDING NODE
ORB: 53
MET: 003:06:03:12
LON: 75.0 E

ORIGINAL PAGE 13
OF POOR QUALITY

UPLINK
SPEC LOAD -
1ST COMM
ALERT
CWL
RCOR SLEEP
CONFIG

STS-4 DETAILED

NOTES

334

1
2
3

COR

NET 08/03/2003

DAY003TES

SCI 51 STDN

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

† SEC. 15—

07:10 -

SECRET

07:20

07:30

028
54

07:40

07:50

08:00

83375

333

U.S. DEPT. OF COMMERCE

1515

**UPLINK
ORBITER S.V.**

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING MODE
QRB: 54
MET: 003:07:33:39
LON: 51.9 E

4-65

5114782 STS471H

MILLS 15.75

COR

ASCENDING NODE
ORB: 57
MET: 003:12:05:01
LON: 17.5 W

TPR
BLOCK DATA
WEATHER PAD
B-14/56-59

8315

5/14/82 STS/IN

STS-4 DETAILED

MET 0800
 DRY.003
 13:00

(R1) B2
 AUTO
 VERN
 RT 0.2
 DB 0.1

SELSI SITM

ALGO 1.1

DRY 58

ALTSUN

13:10
 13:20
 13:30
 13:40
 13:50
 14:00

CDR

SLEEP

PLT

SLEEP

NOTES

MCC

ORIGINAL RECORD
 OF FOUR COPIES

ASCENDING NODE
 ORB: 58
 MET: 003:13:35:26
 LGS: 40.6 M

UPLINK
 DRBITTER S.V.

4-67

5/14/82 STS/R/H

FLT DAY 5

STS-4 DETAILED

MET
DRY003
13:00

(R1) B2
AUTO
VERB
RT 0.2
DB 0.1

SOLSL STIM

PLT

MCC

NOTES

ORIGINAL PAGE 11
OF POOR QUALITY

SLEEP

SLEEP

STS-4 DETAILED

MET 0800
DRY003

CDR

PLT

NOTES

MCC

SCSI STDA

(91) 15:00
AUTO
VERI
RT 0.2
DS 0.1
ORB 59

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ASCENDING NODE
ORB: 59
MET: 003:15:05:55
LON: 63.8 N

CMD
RCOR RAKE
CONETC
UPLINK
SPC LOAD -
CLEAR COMM
ALERT
LINEAR DSEM
SN CKPT -
READ/NOT READ
UPDATE
H2O SPLY DUMP
QTY TK A & B
TPE
BLOCK DATA
WEATHER PAD
B-15/60-63

DM
KAM
RDA
TX
I

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

16:00

4-69

5/14/82 SIS4/RTN

STS-4 DETAILED

MET B C M
DAY 003 1 5

CDR

PLT

NOTES

SOLAR STIM

EPICS THERMAL SINKBOX
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS FTO's)
Perform Step 1 (CONFIGURE FOR
TRANSLATION)

Changeout wireless
headset battery pack

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

SUPPLY WATER DUMP
(ORBIT OPS C/L, FTO's)
Dump TKS A & B

Qty to: QTY A = QTY B =
FUEL CELL PURGE - RUDL (Due Card)

ORIGINAL PAGE 1
OF POOR QUALITY

ASCENDING NODE
ORB: 60
MET: 003: 16:36:22
LON: 86.9 N

MEAL

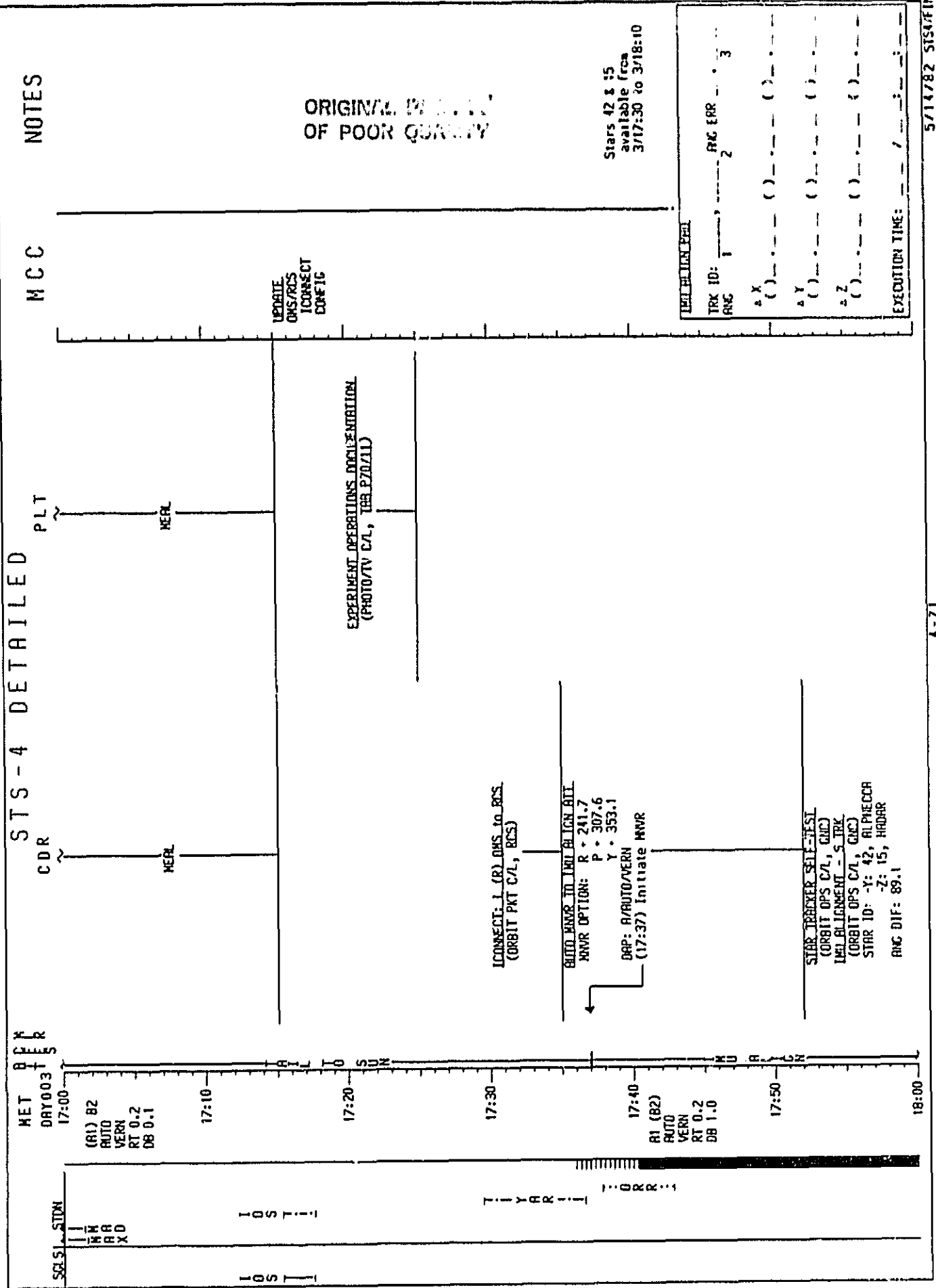
MEAL

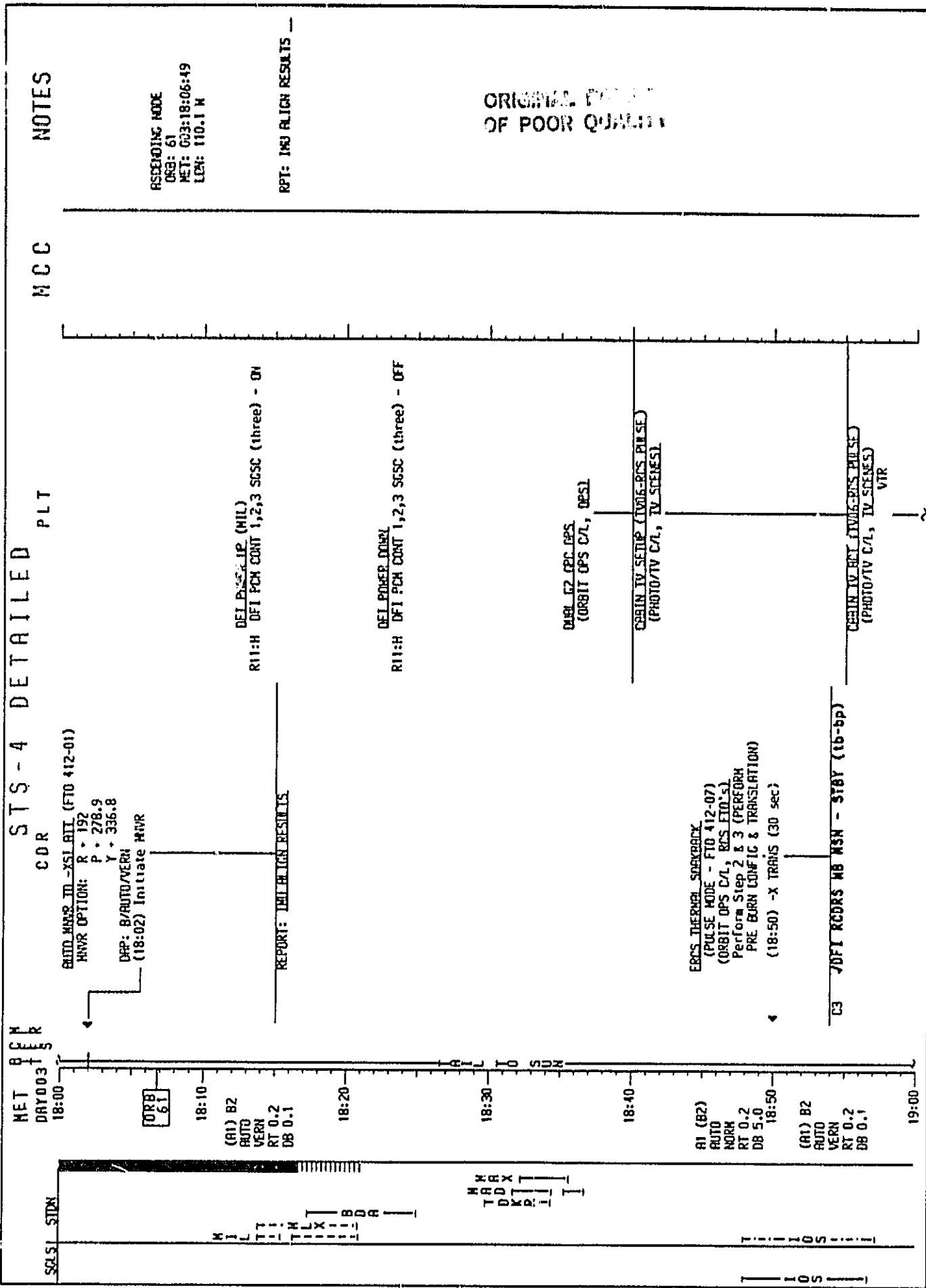
IM
OR
KD
I
MAX

4-7C

5/14/82 51507 IN

STS-4 DETAILED





STS-4 DETAILED

NET B C M
DAY003

NOTES

MCC

PLT

CDR

C3 DFI RCDRS PCM - HI SAMP
(10 min after FPCS Burn)

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

CABIN TV ACT
VTR

ERCS THERMAL SUBRACK
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS ETO-5)
Perform Step 3 (PERFORM TRANSLATION)
(19:20) -X TRANS (30 sec)

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

C3 JDFI RCDRS MB MSN - STBY (tb-bp)

TV/ATR REACT (TV/ATR/DEC Due Card)

C3 DFI RCDRS PCM - HI SAMP
(10 min after FPCS Burn)

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

ASCENDING NODE
ORB: 62
MET: 003:19:37:16
LON: 133.2 W

ERCS THERMAL SUBRACK
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS ETO-5)
Perform Step 3 (PERFORM TRANSLATION)
(19:50) -X TRANS (30 sec)

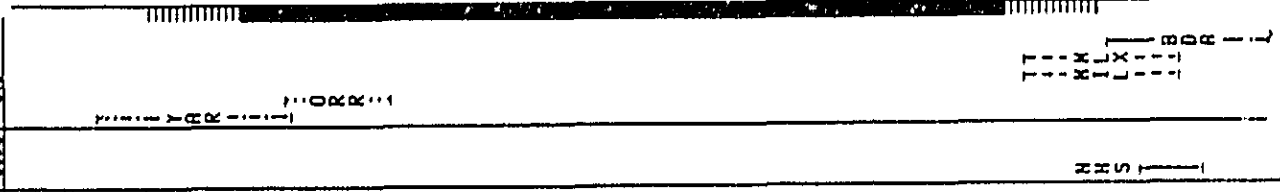
(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

C3 JDFI RCDRS MB MSN - STBY (tb-bp)

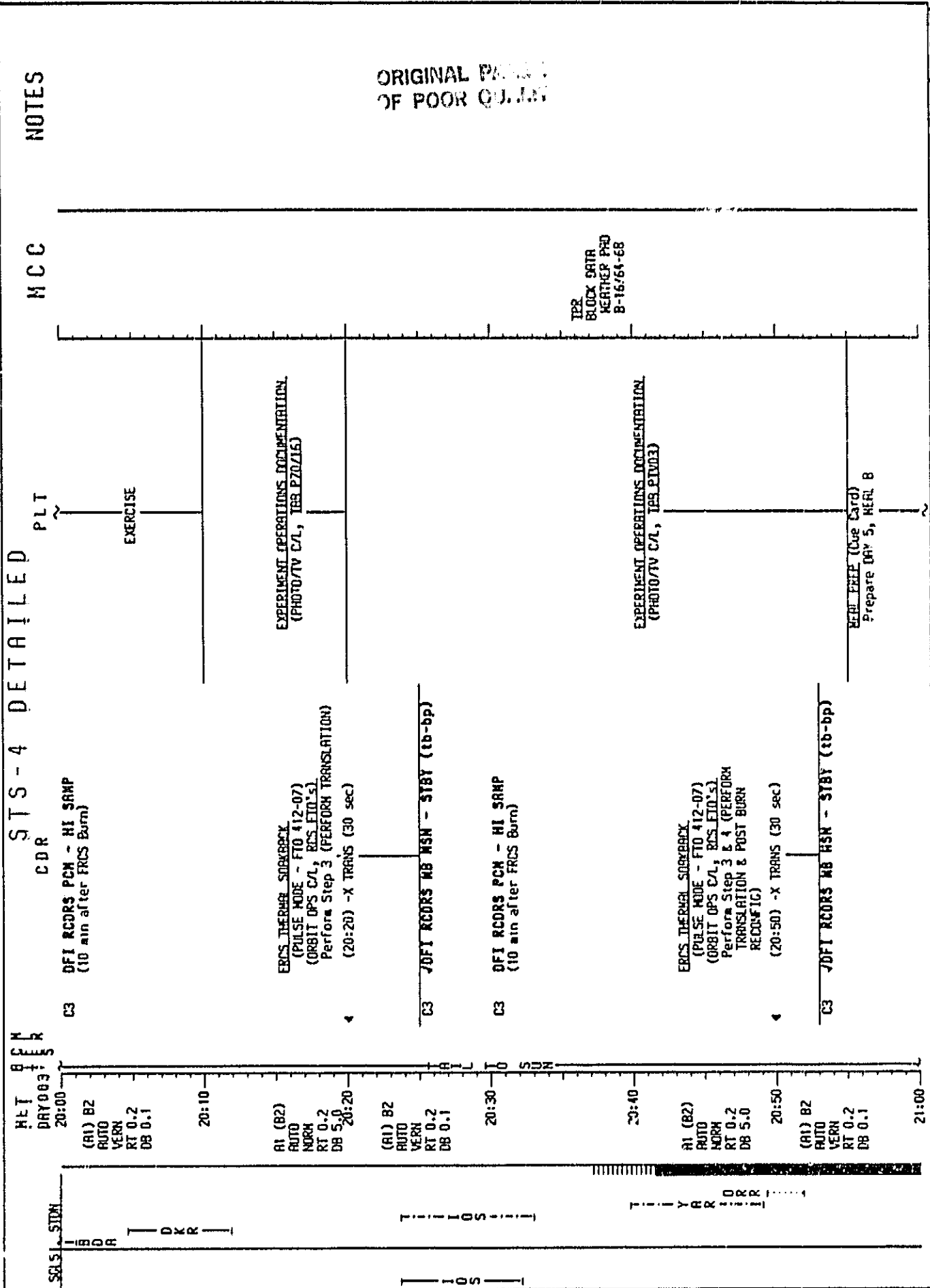
EXERCIS

SOLSI STON

19:00 19:10 19:20 19:30 19:40 19:50 20:00



STS-4 DETAILED



ORIGINAL PAGE
OF POOR QUALITY

TPR
BLOCK DATA
WEATHER PNO
8-16/64-68

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, TBR PIV03)

REP REEF (Que Card)
Prepare DRY S, NEAL B

STS-4 DETAILED

HET
DAY 003

CDR

C3 DF1 RCDRS PCM - HI SAMP
(10 min after FDCS Burn)

NOTES

MCC

PLT

ASCENDING MODE

028: 63

HET: 003:21:07:46

LON: 156.4 W

ORIGINAL WORK
OF POOR QUALITY

WERL PREP

HOUSEKEEPING

VIR SETUP (TW06-HIS PULSE)
(PHOTO/TV C/L, TV SENSES)

EXERCISE

WERL

WERL

(R1) 82
AUTO
VERN
RT 0.2
DB 0.1

028: 63

21:10

21:20

21:30

21:40

21:50

22:00

SGS/ STDN

CGS
TDD
BX
BU

T N H S I

DRR

BOI

HET B C K R
DAY 003

STS-4 DETAILED

NOTES

MCC

PLT

CDR

ORIGINAL PAGE 11
OF POOR QUALITY

ASCENDING NODE
ORB: 64
MET: 003:22:38:13
LON: 179.5 W

UPLINK
ORBITER S.V.

VIR PLAYBACK (TV06-RCS PULSE)
(PHOTO/TV C/L, TV SCENES)
VIR at MIL
(23:00-23:09)

HOUSEKEEPING

ME RL

ME RL

1-76

5/11/82 STS4/FIN

STS-4 DETAILED

NET 0003
DRY003

CDR

PLT

NOTES

MCC

BU
UC
T
M
L
X
B
D
R

HOUSEKEEPING

VTR PLAYBACK
VTR at MIL

TV/VTR DEACT. (TV/VTR/REC Cue Card)

PROCS. HIT HOLD TEST (ACH)
(FTO 477-01)
(ORBIT OPS C/L, CMC ETD's)

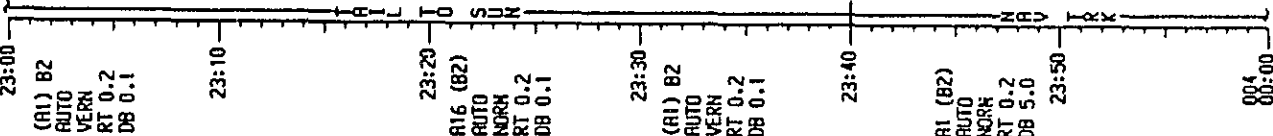
WENOTE
TACRN DATA

TACRN TRACKING
(FTO 479-01)
(ORBIT OPS C/L, CMC ETD's)

C2 TO C8 TRANSITION

TRACK TACRN SITE

16MM CAMR SETUP (16MM/DB-AUTO MINVR)
(PHOTO/TV C/L, 16MM SCENE'S)



ORIGINAL PAGE IS
OF POOR QUALITY

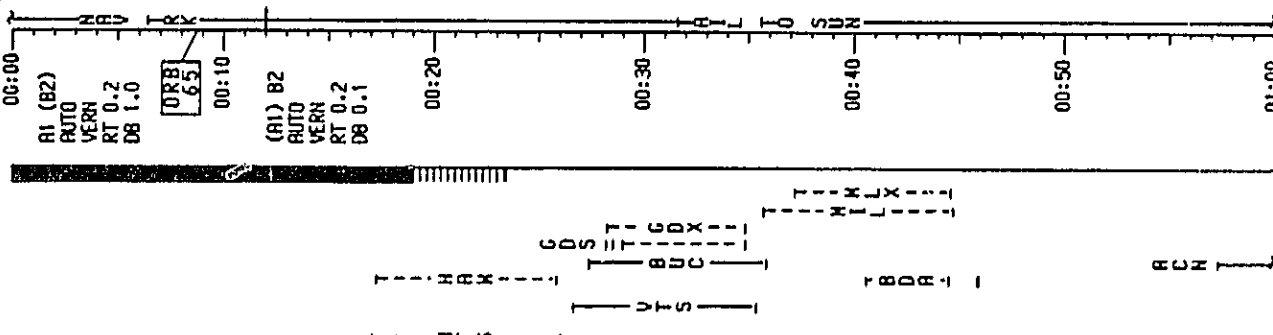
STS-4 DETAILED

CDR

PLT

NOTES

HET 0600
DAY 004



TACRN TRACKING

16MM CAMP DEBCT (16MM/DB-AUTO MNR)
(PHOTO/TV C/L, 16MM SCENES)

GS TO G2 TRANSITION

AUTO MNR TO -XSL ATT (FTD 412-01)

MNR OPTION: R - 192
P - 278.9
Y - 336.8

DAP: B/AUTO/VERN
(00:12) Initiate MNR

16MM CAMP DEBCT (16MM/DB-AUTO MNR)
(PHOTO/TV C/L, 16MM SCENES)

16MM CAMP DEBCT (16MM/DB-AUTO MNR)
(PHOTO/TV C/L, 16MM SCENES)

PRIVATE MEDICAL COMMUNICATION

PRIVATE MEDICAL COMMUNICATION

16MM CAMP SETUP (16MM/10-EDS C/L)
(PHOTO/TV C/L, 16MM SCENES)

07 POWER UP TACRNS (FTD 479-01)
TACRAN (three) MODE - T/R
(three) ANT SEL -
CH 1 - X
CH 2 - X
CH 3 - X
(:) Channels are for

ASCENDING NODE
ORB: 65
FT: 004:00:08:43
GN: 157.3 E

ORIGINAL DATA
OF POOR QUALITY

STS-4 DETAILED

NET
DAY 004
01:00

CDR

PLT

NOTES

MCC

R2
BPULSTERN VENT HTR ACT
JBLR CHTLR PAR/HTR (three) - B
CHTLR (three) - ON

ECS CHECKOUT
(ORBIT OPS C/L, GNC)
Step 1 - FCS & DED DISPLAY
CONFIC

ECS CHECKOUT
(ORBIT OPS C/L, GNC)
Step 1 - FCS & DED DISPLAY
CONFIC

ECS CHECKOUT
(ORBIT OPS C/L, GNC)
Step 2 - DPS CONFIC FOR FCS C/O

1694L CDR ACT (16944/10-ECS C/O)
(PHOTO/TV C/L, 1694 SERIES)

ECS CHECKOUT
(ORBIT OPS C/L, GNC)
ON-ORBIT FCS CHECKOUT,
PART 1 & 2

ECS CHECKOUT
(ORBIT OPS C/L, GNC)
ON-ORBIT FCS CHECKOUT,
PART 1 & 2

ASCENDING NODE
ORB: 66
MET: 004:01:39:12
LON: 134.1 E

UPLINK
ORBITER S.V.

STS-4 DETAILED

MET A CERS
DAY 004
03:00

CDR

AUTO MNR TO -YSL ATZ (FTO 412-01)

MNR OPTION: R * 192

P * 278.9

Y * 336.8

DAP: B/AUTO/VERN

(03:02) Initiate MNR

PLT

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)

Dump TKS A & B

Dump to:

QTY A =

QTY B =

MCC

TPR
BLOCK DATA
WEATHER PRO
B-17769-72

ASCENDING NODE

ORB: 67

MET: 004:03:09:41

LON: 111.0 E

ORIGINAL PAGE 17
OF POOR QUALITY

SCLSI STON

(A1) 82

AUTO

VERN

RT 0.2

DB 0.1

ORB 67

03:10

03:20

03:30

03:40

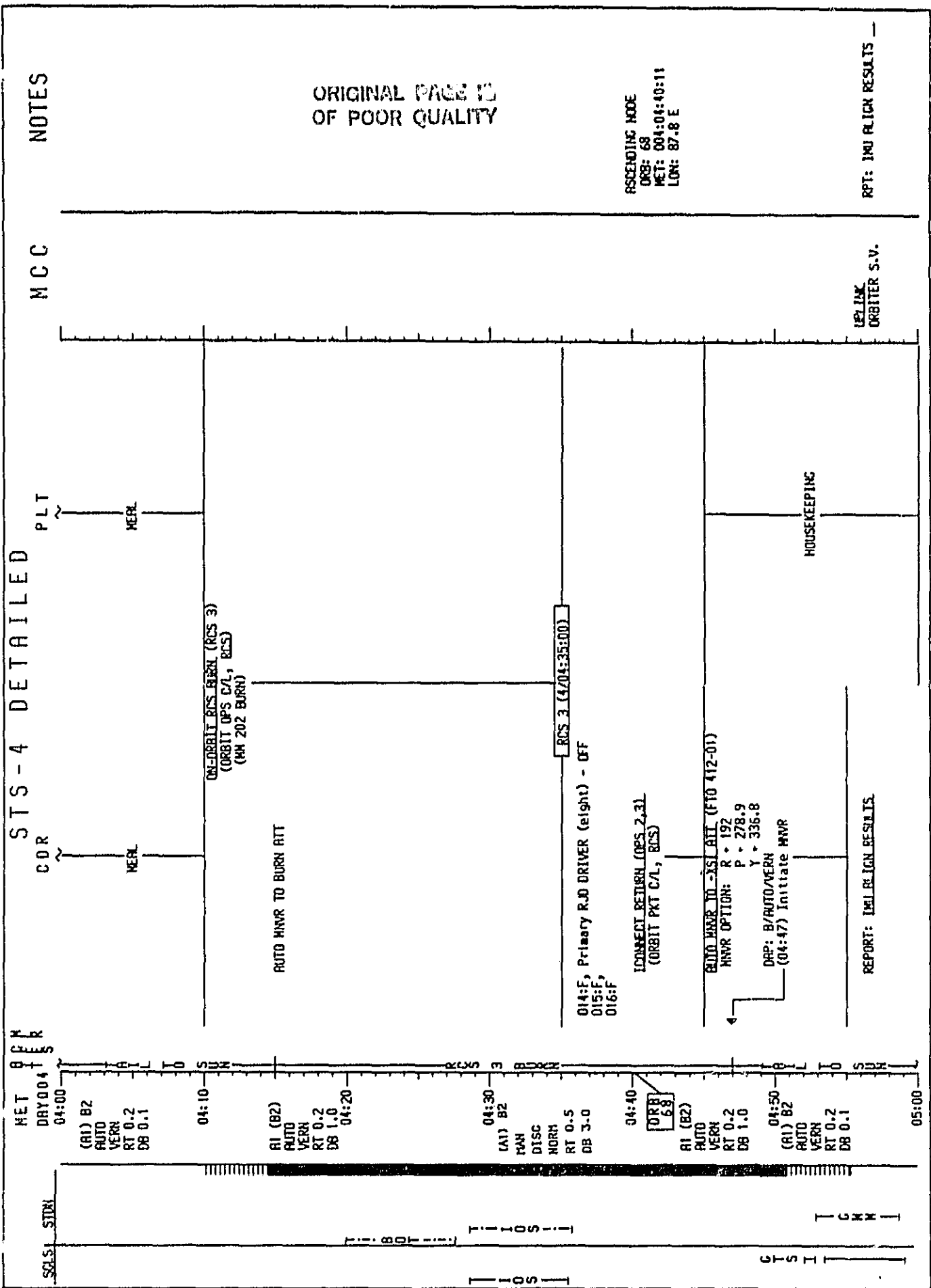
03:50

04:00

TAIL TO SUN

MEAL

MEAL



MET PER

DAY 004

STS-4

CDR

PLT

NOTES

MCC

ORIGINAL PAGE 17
OF POOR QUALITY

SINGLE IZ REC OPS
(ORBIT OPS C/L, DPS)

DEL POWER UP (HWA)
R11:H DF1 PCH CONT 1,2,3 SCSC (three) - ON

HOUSEKEEPING

EXPERIMENT OPERATIONS IDENTIFICATION
(PHOTO/TV C/L, TBR P70/05)

EXPERIMENT OPERATIONS IDENTIFICATION
(PHOTO/TV C/L, TBR P70/13)

DEL POWER DOWN
R11:H DF1 PCH CONT 1,2,3 SCSC (three) - OFF

VPC FREEZER TEMP READING
(FTO 467-02)
Record time, freezer temp,
condenser temp (Cue Card)

CO2 RESORBER REPLACEMENT
(7 into R)

ISSM CDRS SETUP (ISSM/09-PIED CYCLE TEST)
(PHOTO/TV C/L, ISSM STAGES)

C3 DF1 RCORS PCH - HI 3RRY
(Last 10 Hrs of TRAIL TO SUN)

DEL CELL PURGE - RUM (Cue Card)

PPE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PPE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Except: Leave DF1 RCORS PCH - HI SAMP

POST ONLY
COORD CDR/CDR
LIMITS CLEARUP
FOR CREW SLEEP

05:00

05:10

05:20

05:30

05:40

05:50

06:00

06:10

06:20

06:30

06:40

06:50

07:00

07:10

07:20

07:30

07:40

07:50

08:00

08:10

08:20

08:30

08:40

08:50

09:00

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53:00

53:10

53:20

MET
 05Y004
 91
 000000
 10

NOTES

CC-0

119

COR

NET 05Y004
9-11-68
CUBA
R-R

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

ASCENDING NODE
ORB: 69
MET: 004:06:10:40
LDN: 64.7 E

ORIGINAL. PAGE 15
OF POOR QUALITY

UPLINK
SPC LOAD -
1ST COMH
ALERT
END
RCDR SLEEP
CONFIC

PRE SLEEP ACTIVITY

PRE SLEEP ACTIVITY

DATE

Slurp!

NIJ/USIS 281115

30

STS-4 DETAILED

MET
DAY 004

07:00

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

07:10

07:20

07:30

07:40

07:50

08:00

SGLSI STON

BACK

PLT

CDR

PLT

MCC

NOTES

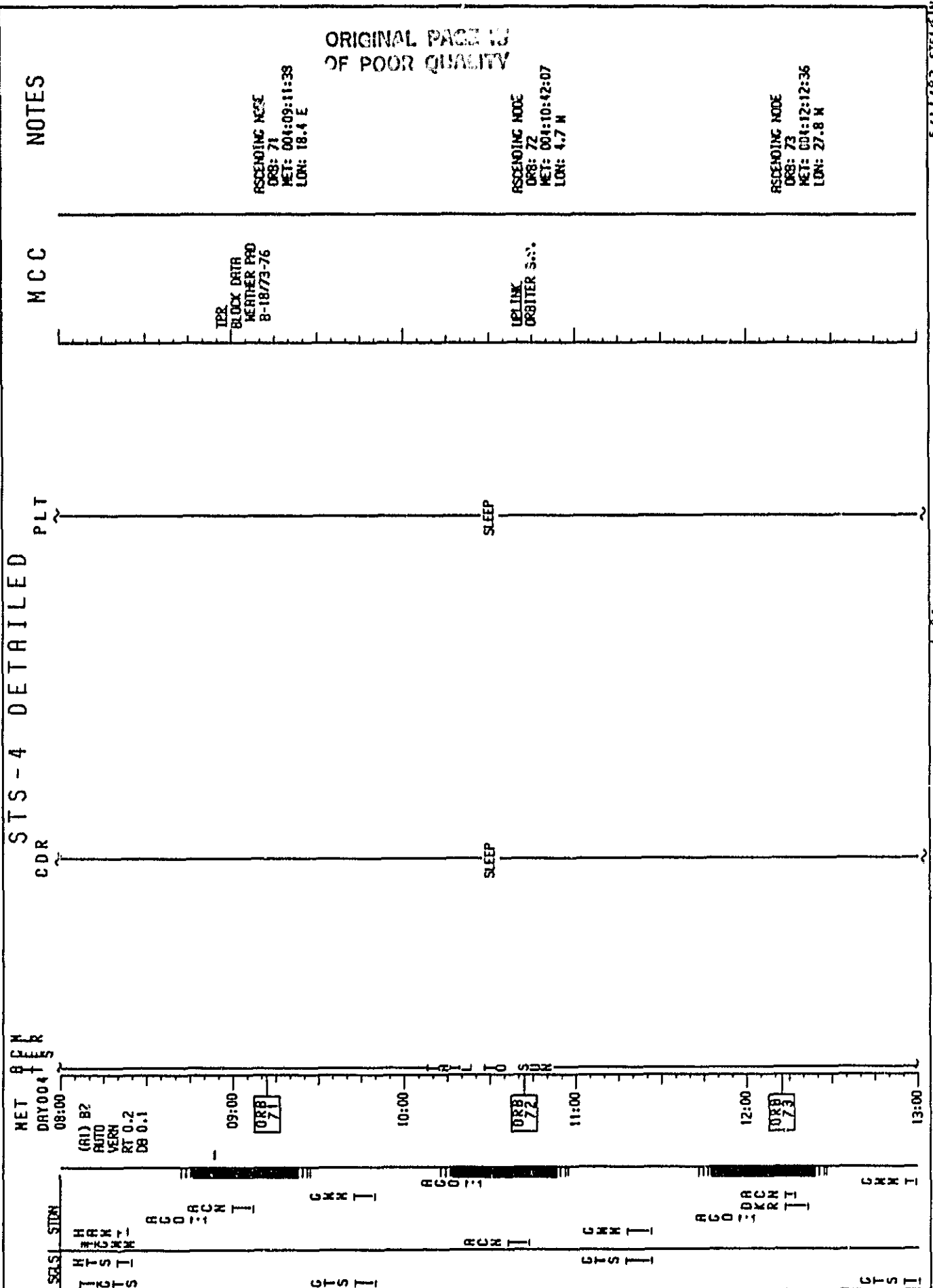
ORIGINAL RECORD
OF POOR QUALITY

ASCENDING NODE
DB: 70
MET: 004:07:41:09
LON: 41.5 E

SLEEP

SLEEP

STS-4 DETAILED



ORIGINAL PAGE 13
OF POOR QUALITY

5/14/82 SIS4/IN

4-86

STS-4 DETAILED

NOTES

MCC

PLT

CDR

MET
DAY004
13:00

SLSL STDN

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

13:10

13:20

13:30

13:40

13:50

14:00

ORIGINAL PAGE 11
OF POOR QUALITY

ASCENDING NODE
ORB: 74
MET: 004:13:43:05
LOM: 51.0 N

UPLINK
ORBITER S.V.
CNO
RCOR EAPKE
CONFIC
UPLINK
SPC LOFO -
CLERE COMM
ALERT

SLEEP

SLEEP

5/14/82 SIS/IN

1-87

FLT DAY 6

NET
DRY004

NOTES

CC-0

PLT

COR

NET
DRY

(A1) B2
AUTO
VERB
RT 0.2
DB 0.1

14=10

14:20

14:30

14:40

14:50

00:51

STEEP

Index

POST SLEEP ACTIVITY
(0831T OPS C/L, CDEM SYS;
SAS M360 7/1 540 11840)

POST SLEEP ACTIVITY
(0800H DPS CAL, CREW SYS)

ORIGINAL PAGE IS
OF POOR QUALITY

1

Analysis 291115

STS-4 DETAILED

NET 0 CDR
DAY 004

NOTES

MCC

PLT

CDR

SCSI STON

(R1) B2
AUTO
VERB
RT 0.2
DB 0.1

POST SLEEP ACTIVITY

POST SLEEP ACTIVITY

ASCENDING NODE
ORB: 75
MET: 004:15:13:34
LON: 74.1 N

DM
KA
RD
T
M
A
X
I

TPR
BLOCK DATA
WEATHER PRO
8-19/77-80
UNDECK CREW
SN EXPT -
REDD/NOT RECD

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

LENS THERMAL SENSORS
(ONE PRO ENGINE - FTO 412-05)
(ORBIT OPS C/L, RCS LEID'S)
Perform Step 1 (CONFIGURE FOR
TRANSLATION)

FILE CELL PURGE - HHHH (Due Card)

L1 HI LOBO DUCT HTR - R
(S88 THERMAL EVAP)
(30 min prior to FES ENABLE
for PLBD OPS)

MEAL

MEAL

ORIGINAL PAGE 13
OF POOR QUALITY

STS-4 DETAILED

NET
DAY 004

SCSI STDH

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

YARR TINIT DRR 11

ORB
76

MW
LI
XLB
TTDR
TTT

CDR

PLT

NOTES

MCC

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 76
MET: 004:16:44:03
LON: 97.3 W

PLBD PERFORMANCE
(PLBD COLD CASE - FTO 451-03)
(ORBIT OPS C/L, PLBD FTO's)
Theodolite sightings
during PLBD operations

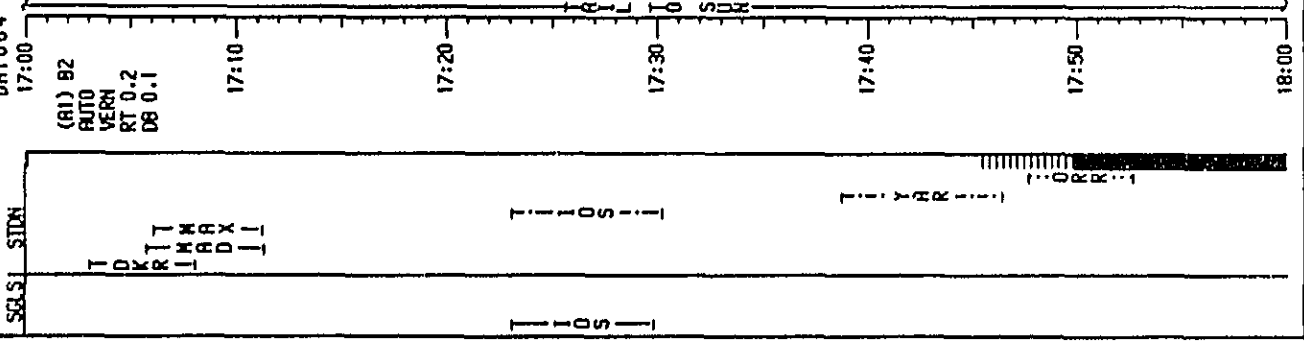
PLBD PERFORMANCE
(PLBD COLD CASE - FTO 451-03)
(ORBIT OPS C/L, PLBD FTO's)
Theodolite sightings
during PLBD operations

4-90

5714/82 STS4/FIN

STS-4 DETAILED

NET
DAY 004
17:00



NOTES

MCC

PLT

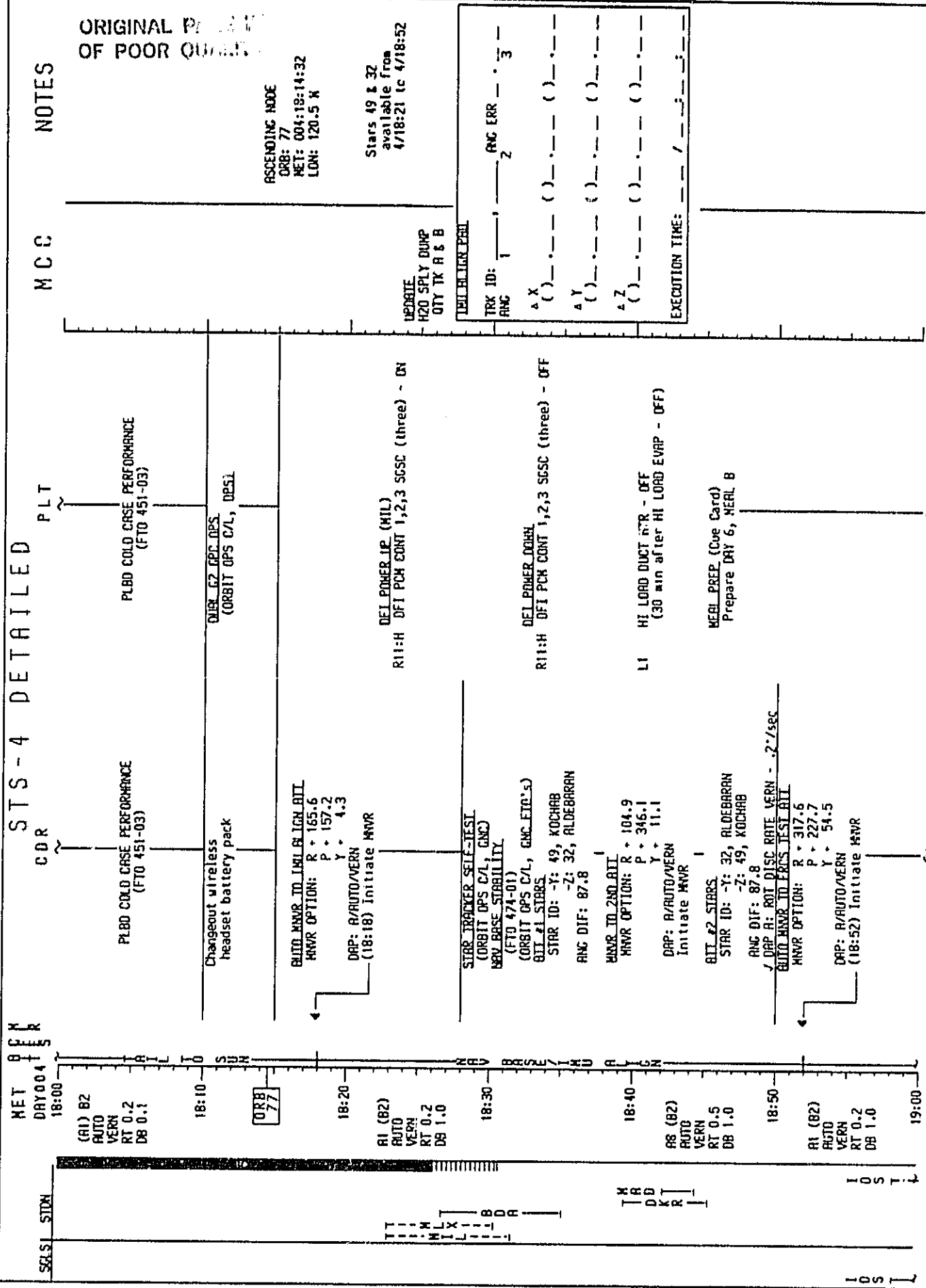
CDR

ORIGINAL PAGE 18
OF POOR QUALITY

PLBD COLD CASE PERFORMANCE
(FTC 451-03)

PLBD COLD CASE PERFORMANCE
(FTD 451-03)

STS-4 DETAILED



STS-4 DETAILED

NOTES

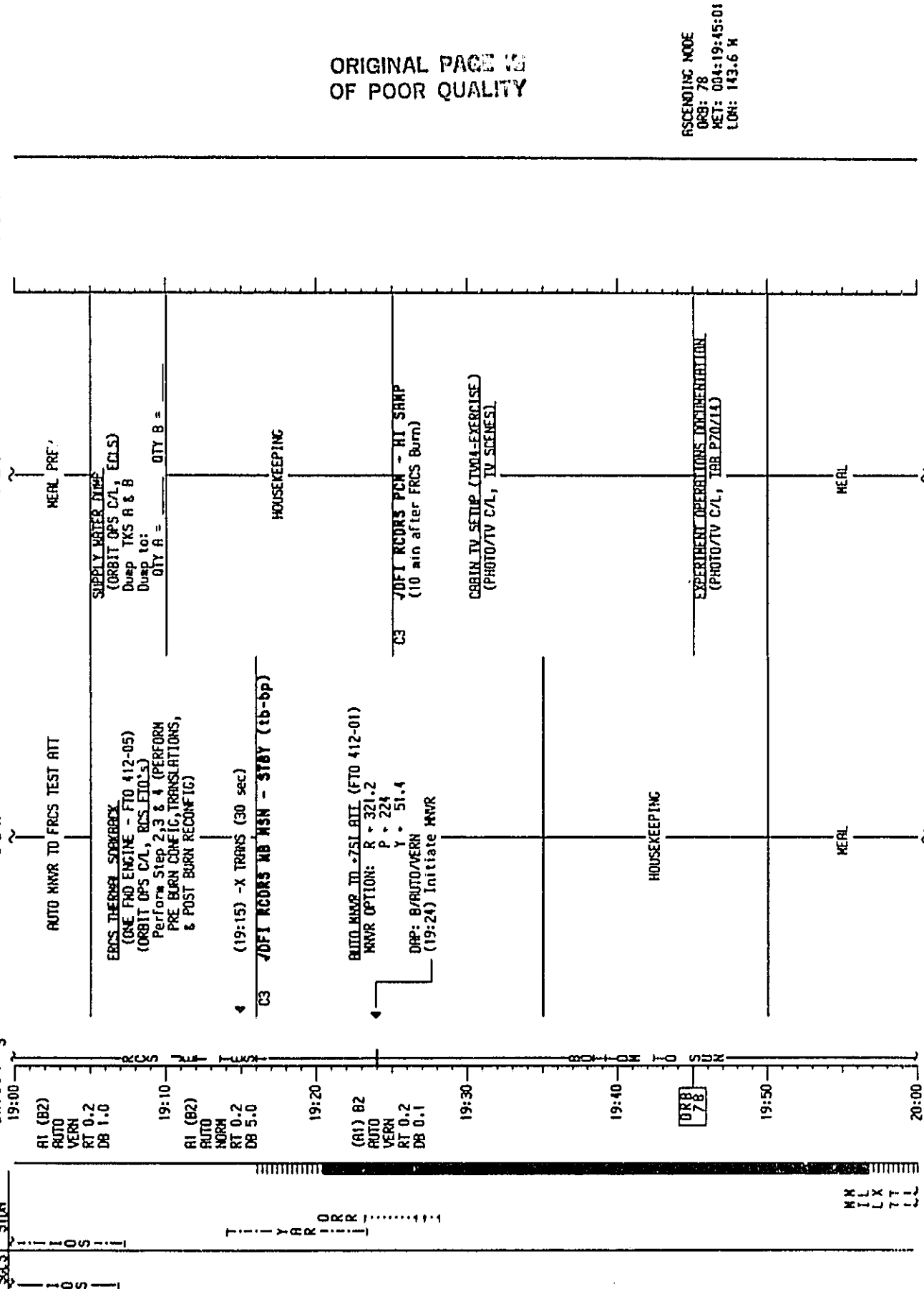
MCC

PLT

CDR

MET
DAY 004

SCS STON



STS-4 DETAILED

NOTES

MCC

PLT

CDR

ORIGINAL PAGE 1
OF POOR QUALITY

5/11/78Z SISAFIN

1-91

MET BURN
DAY 004

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

20:10

20:20

20:30

20:40

20:50

21:00

A1 (B2)
AUTO
VERN
RT 0.2
DB 1.0

AUTO MMR TO BURN ATT

ON ORBIT RCS BURN (RCS 4)
(ORBIT OF 5 CAL, RCS)
(MM 202 BURN)

HERL

HERL

SESL STN

T N H S I

ORR

STS-4 DETAILED

NET
DRY004

NOTES

MCC

PLT

CDR

ASCENDING NODE
308: 79
MET: 004:21:15:30
LOH: 166.7 W

TPR
BLOCK DATA
WEATHER PRO
B-20/81-84

ORIGINAL PAGE 1
OF POOR QUALITY

RCS 4 (4/21:15:00)

014:E, Primary RJD DRIVER (eight) - OFF

015:E,
016:F

AUTO MNR ID POST BURN RTIL
(Use PRO ATT)
DAP: R/AUTO/VERN
Initiate MNR

SINGLE G2 OFF OPS
(ORBIT OPS C/L, DES)

AUTO MNR ID 751 RTIL (FTO 412-01)
MNR OPTION: R - 321.2
P - 224
Y - 51.4
DAP: R/AUTO/VERN
(21:52) Initiate MNR

EXERCISE

21:00

A1 (B2)
AUTO
VERN
RT 0.2
DB 1.0

(A1) 21:20

MAN
NORM
RT 0.5
DB 1.0

21:20

A1 (B2)
AUTO
VERN
RT 0.2
DB 1.0

21:30

21:40

21:50

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

22:00

STS-4 DETAILED

CDR

PLT

NOTES

ORIGINAL PAGE
OF POOR QUALITY

ASCENDING NODE
DRG: 80
MET: 004:22:45:59
LON: 170.0 E

MCC

AUTO MNVR TO +ZSI ATT

CABIN TV REL (TOTAL-EXERCISE)
(PHOTO/TV C/L, TV SCENES)
Live at HRA

EXERCISE

PRIVATE MEDICAL COMMUNICATION

PRIVATE MEDICAL COMMUNICATION

AUTO MNVR TO IECD GAS RELEASE

TGT ID + 2
BODY VECTOR + 5
P + 0
Y + 270
DN + 90
DAP: A/AUTO/VERN
(22:34) Initiate TRK

EXERCISE

IECD GAS RELEASE (FSO 5431-01)

✓Attitude mnvr complete

Change DAP A:

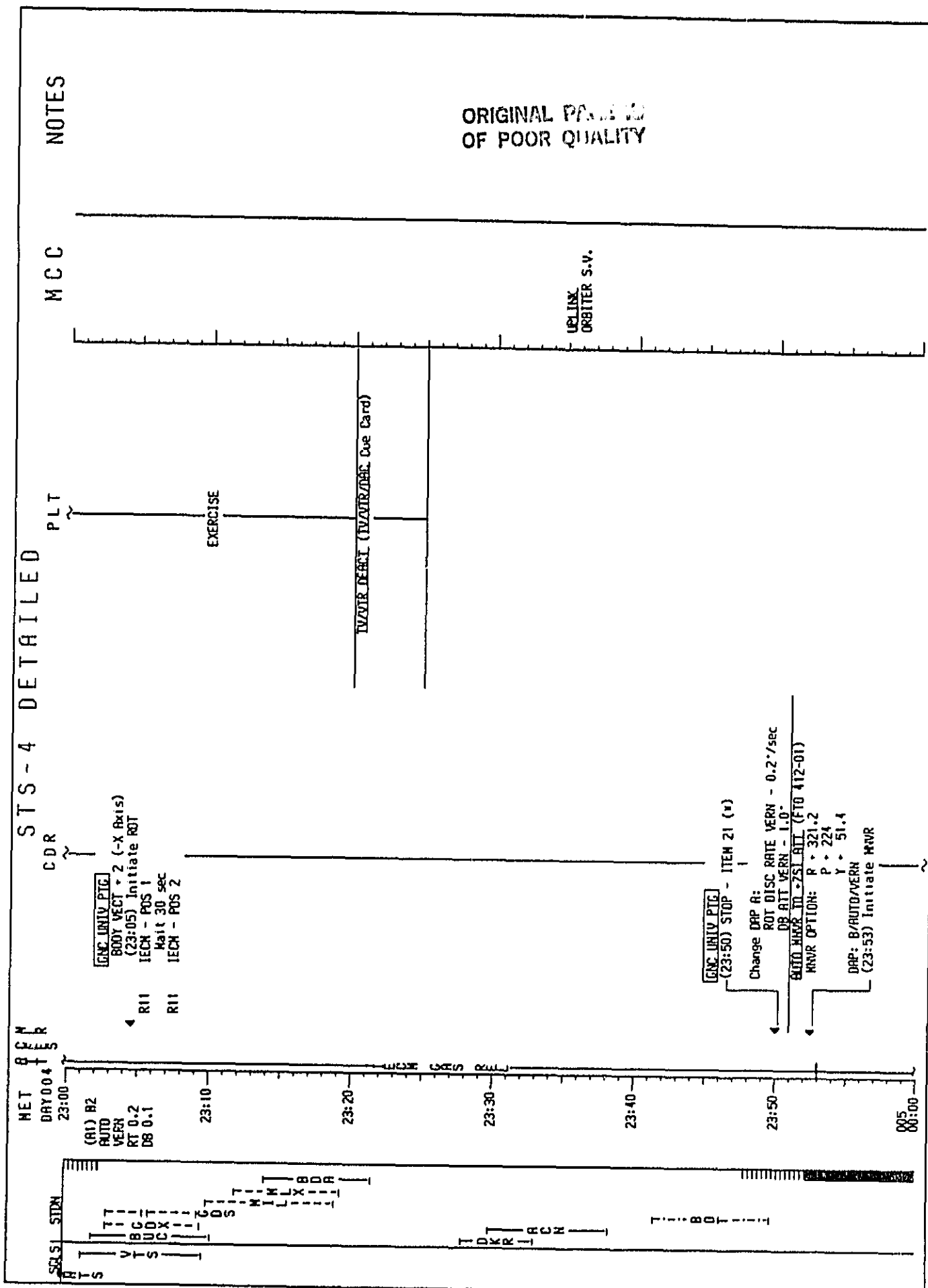
ROT DISC RATE VERN - .007"/sec

DB ATT VERN - 0.5"

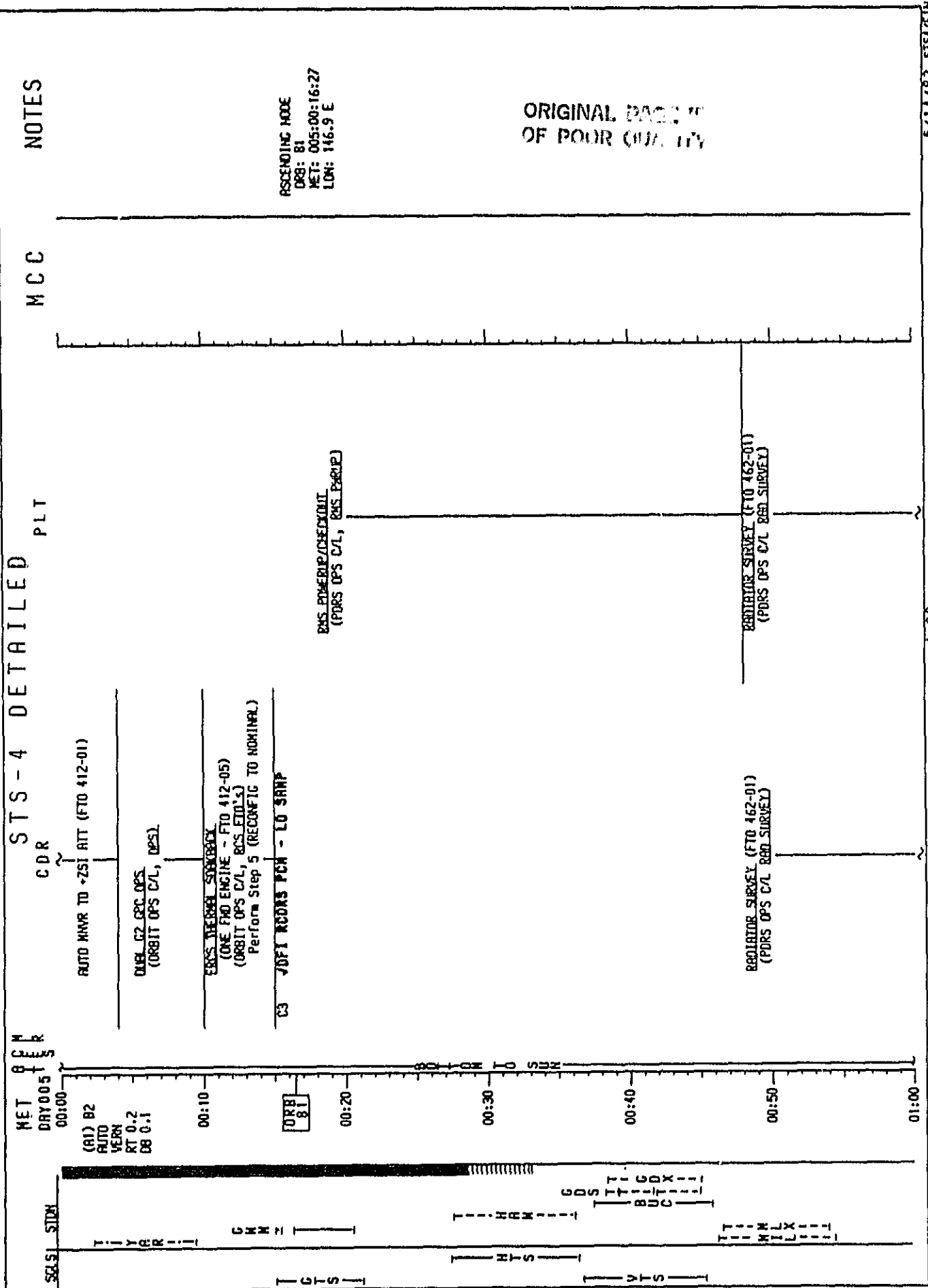
DAP: A/AUTO/VERN

4-96

5/14/82 STS/FFIN



STS-4 DETAILED



ASCENDING NODE
ORB: 81
MET: 005:00:16:27
LON: 116.9 E

ORIGINAL PAGE 11
OF POOR QUALITY

STS-4 DETAILED

MET DAY 005
01:00

NOTES

MCC

PLT

CDR

RADIATOR SURVEY
(FTO 462-01)

RADIATOR SURVEY
(FTO 462-01)

ORIGINAL PHOTO
OF POOR QUALITY

ASCENDING NODE
ORB: B2
MET: 005:01:46:56
LON: 123.7 E

UNLOADED RMS/PRCS INTERSECTION
(FTO 452-03)
(PDMS OPS C/L, UNLOADED PRCS)
(Perform during darkness)

UNLOADED RMS/PRCS INTERSECTION
(FTO 452-03)
(PDMS OPS C/L, UNLOADED PRCS)
(Perform during darkness)

RE-ESTABLISH BOTTOM SUN AIT
DAP: B/AUTO/VERN

MET
DAY 005

02:00

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

02:10

02:20

02:30

02:40

02:50

03:00

SEAS SURF

HTS

VIS
GDS
TTC
8C1
UCX
T

ECN

T

STS-4 DETAILED

CDR

PLT

SINGULARITY HANDLING - MENDEL
(FTO 452-02)
(PDOS OPS C/L, SINGULAR HANDLING)

SINGULARITY HANDLING - MENDEL
(FTO 452-02)
(PDOS OPS C/L, SINGULAR HANDLING)

MCC

TP2
BLOCK DATA
WEATHER PRO
8-21/85-88
UPLINK
ORBITER S.V.

REAL PREP (One Card)
Prepare DAY 6, MEN C

RMS PROGRAM
(PDOS OPS C/L, RMS PROGRAM)

On PDOS DPC (six) - OP
(Post RMS Activities)

SINGLE C2 DPC OPS
(ORBIT OPS C/L, DCS)

ORIGINAL PAGE IS
OF POOR QUALITY

NOTES

MET
 MAY 05
 14
 15
 16

CC

LEADLINE
H2O SPLY DUMP
QTY TK A & B

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, TBS PZD/15)

SUPPLY WATER DUMP
(ORBIT OPS C/L; ECLS)
Dump TKS A & B
Dump to:

QTY A = _____ QTY B = _____

ASCENDING HOPE

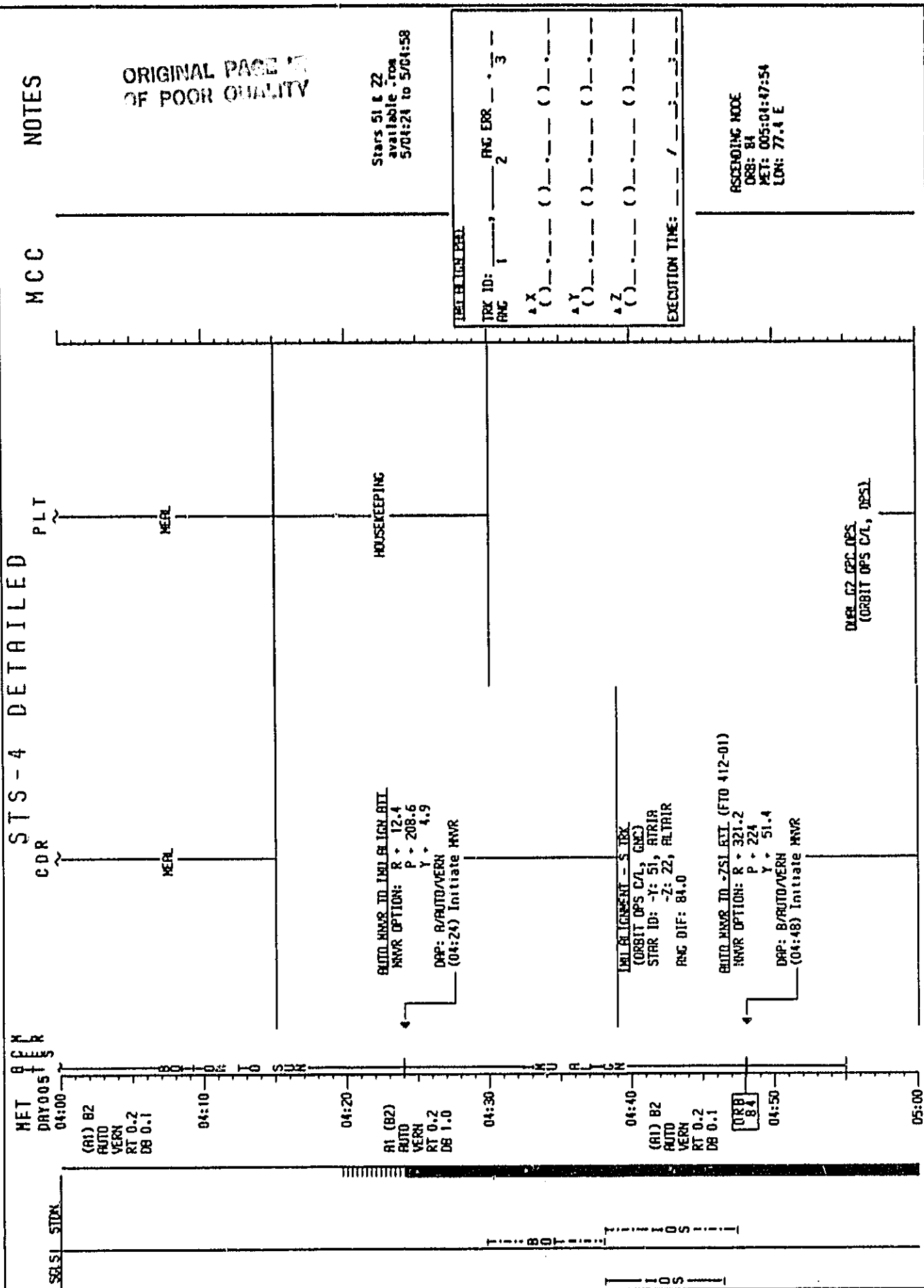
0909 = 83

SET= 065:03:17:25

3 0.51: 507

ORIGINAL, PAGE 7
OF POOR QUALITY

STS-4 DETAILED



ORIGINAL PAGE 15
OF POOR QUALITY

Stars 51 & 22
available from
5/04:24 to 5/04:58

TELETYPE

TRX ID: 1 RNC ERR: 2 3
 X () () () ()
 Y () () () ()
 Z () () () ()
 EXECUTION TIME: / - - - -

ASCENDING NODE
 DBS: 84
 MET: 005:04:47:54
 LON: 77.4 E

NET 1 DAY005
At 5 WEEK
Hk

SELS! STDN

DAY 00

051

A15 (B2)
MAN
NORH
PULSE
RT 0.2
DB 5.0

05:10

05:20 -

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

05:30 -

05:40 -

05:50 -

06:00 -

COR

STS-4 DETAILED

PLT

NOTES

CCZ

BOS HOT FIRE TEST
(ORBIT OPS C/L, BOS)

DISSECT BATTEN (SS 23)
(ORBIT PKT C/L, RCS)

DEF_POWER_IP (H8M)
RUI:H DFI PCM CONT 1,2,3 SCSC (three) - ON

RE-ESTABLISH ROUTING TO SUN ATE
DAP: 8/AUTO/VERN

DEL PRIMER DONAL
R11:4 DEL PKX CONT 1.2.3 SCSC (three) - DEF

SINGLE 12 DEC OPS
(0817 OPS C/L, OPS)

VFC FREEZER TEMP READING
(FTO 467-02)
Record time, freezer temp,
condenser temp (Cue Card)

C02 RESEALER REPLACEMENT
(8 into B)

HOUSEKEEPING

1111-1111-1111 (Due Card)

PRE STEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CECN SYS)

ORIGINAL LENSES
OF POOR QUALITY

ALLS 15/55

NOTES

১১৫

ASCENDING NODE
 OFI: 25
 MET: 205:06:18:22
 LON: 54.3 E

ORIGINAL PAGE IS
OF POOR QUALITY

REC ONLY
COORD CEM/FDR
LIMITS CLEARUP
FOR DREN SLEEP

UPLINK
SPC LOAD -
1ST COMM
ALERT
CMD
RCOR SLEEP
CONFIG

PRE SLEEP ACTIVITY

PRE SLEEP ACTIVITY

43375

DEPT

101-4

HHS/PSIS 28171/5

STS-4 DETAILED

NET
07:00
07:10
07:20
07:30
07:40
07:50
08:00

SCSI STIN

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

S R R

801 000 10 SUM

ACN T I

I O S T I I

I O S T I I

CDR

SLEEP

PLT

SLEEP

MCC

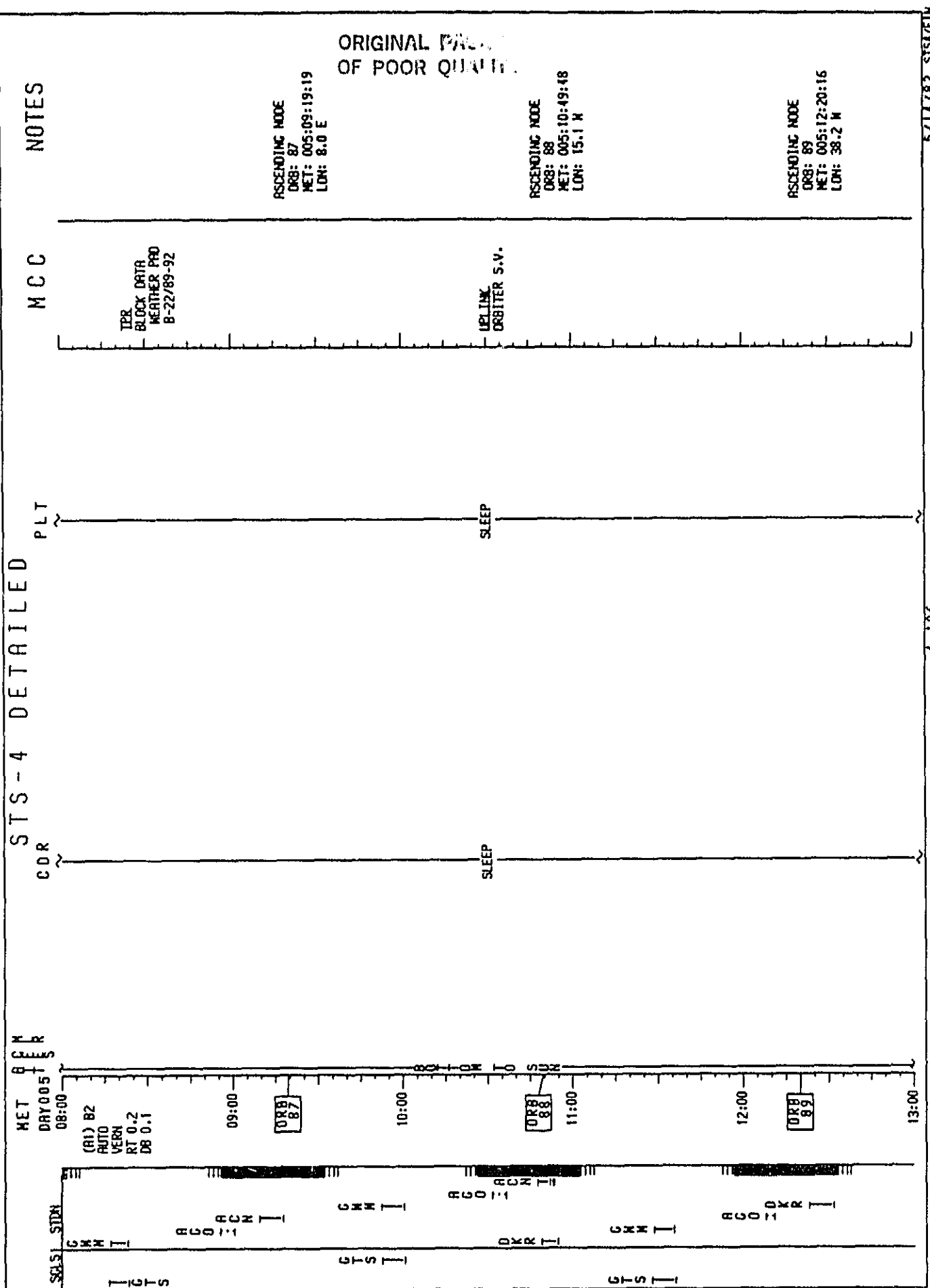
UPLINK
DRBITTER S.V.

NOTES

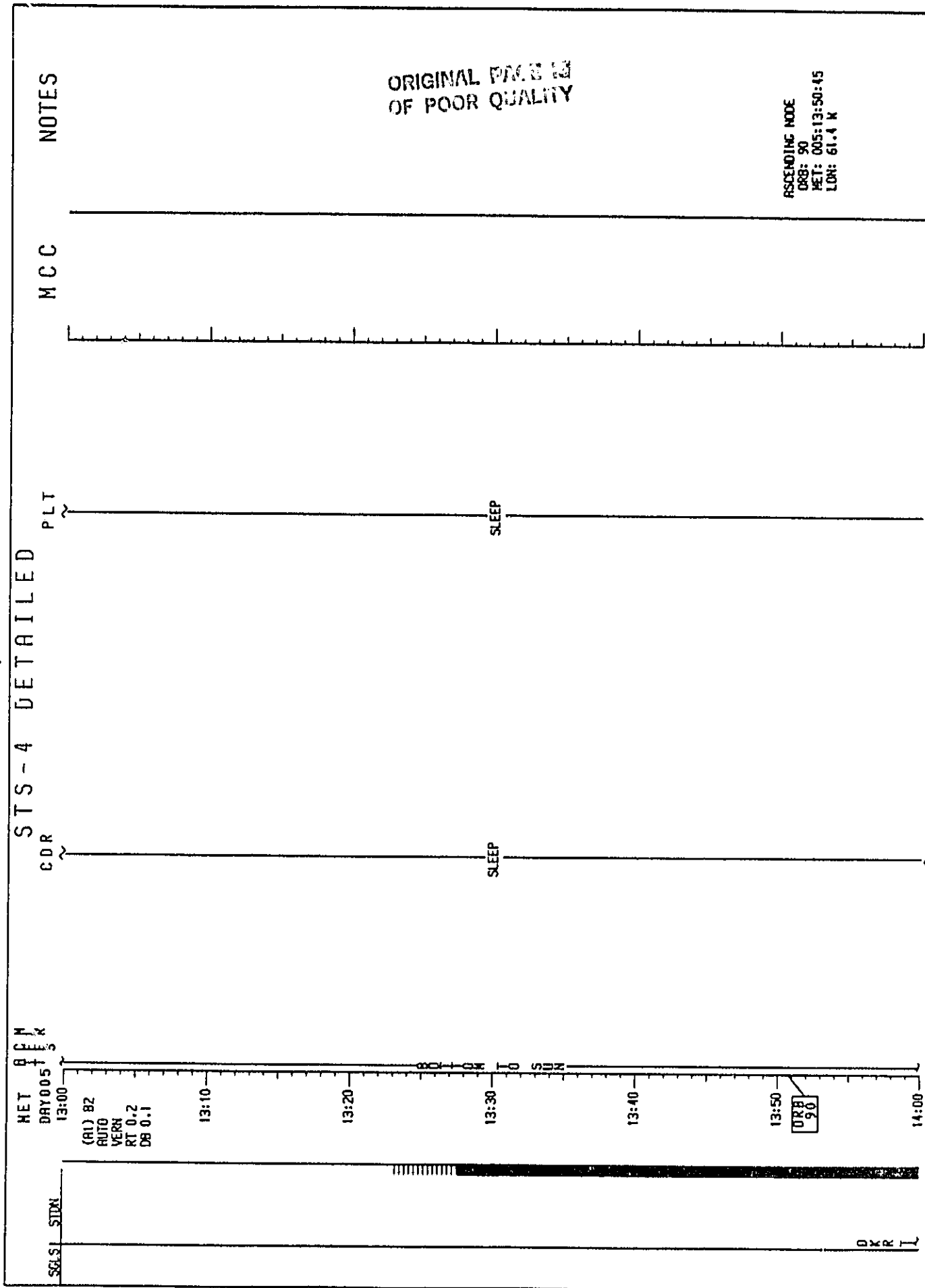
ORIGINAL PAGE IS
OF POOR QUALITY

RSCENDING NODE
DRB: 86
MET: 005:07:48:51
LON: 31.1 E

STS-4 DETAILED



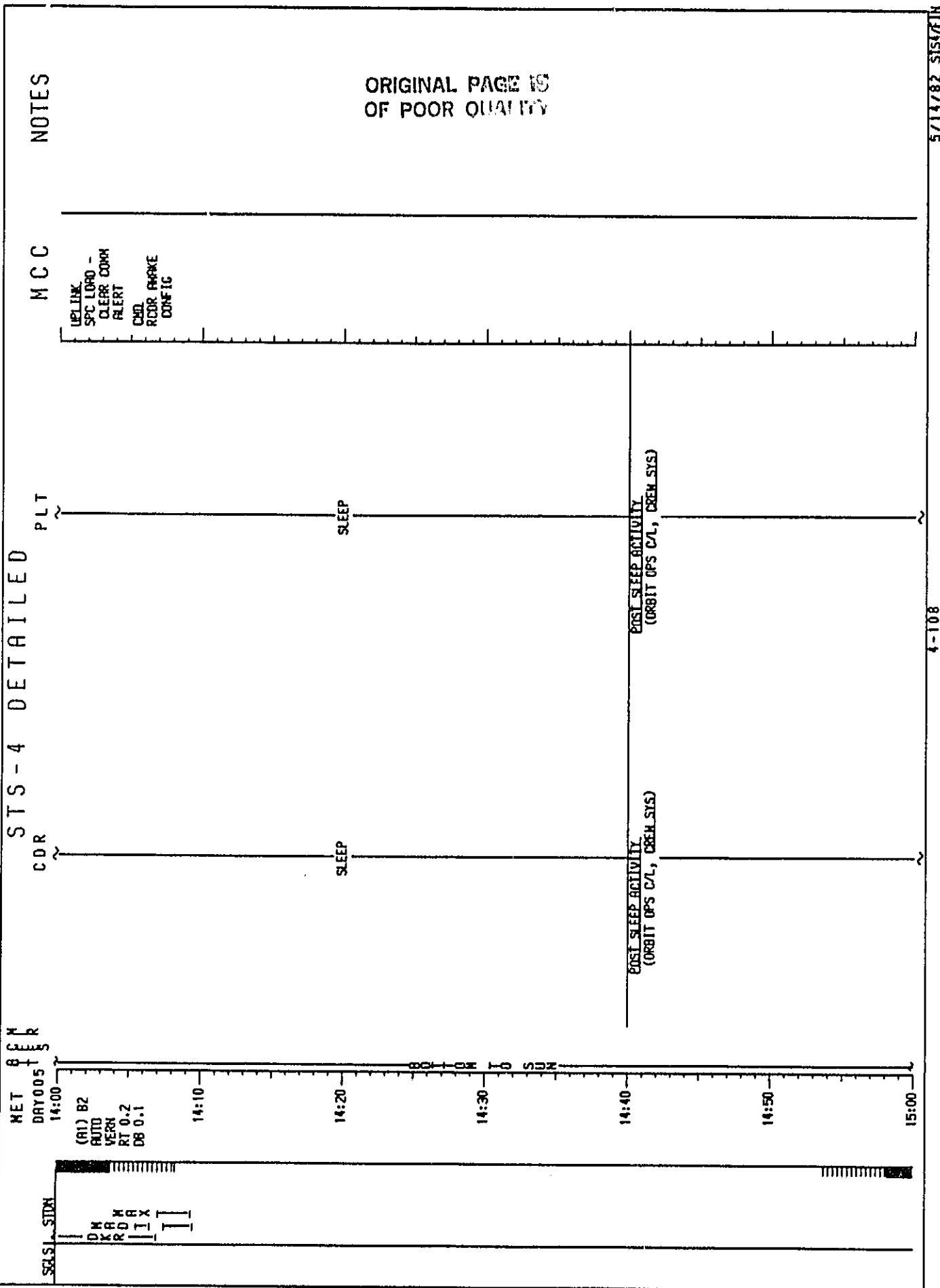
STS-4 DETAILED



4-107

5714782 STS47FIN

FLT DAY 7



HET
 DAY005
 8
 3
 1

MOLES 15.135

S
CDR

PLT

MCC NOTES

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/1 - CREW SYS)

15:00
(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

15:10 -

15:20 -

15:30 -

15:40 -

15:50 -

16:00

—XEX—
XED —+—
—DNR—

ERCS/ARCS THERMAL STACKBACK
(? END/1 BET RCS ENG - FTO 412-06,08)

(ORBIT OPS C/L, RES EING)
Perform Step 1 (CONFIGURE FOR
TRANSLATION)

REFUEL CELL PRNGE - AUTO (Due Card)
TRANSACT 10/07
GAS DEACTIVATION FREE (Due Card)
(FSD 5435-01)

PERSONAL PERFORMANCE PREP ①

ORBIT OPS C/L, OPS

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, 18A P70/12)

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:

QTY A = _____ QTY B = _____

PRSD PERFORMANCE PREP ①
CRYO 02 TK1, 2, 3, 4 HRS (ALL) - OFF
CRYO H2 TK1, 2, 3, 4 HRS (ALL) - OFF
until 02 PRESS = 700 PSIA
or H2 PRESS = 180 PSIA
or PRSD PERFORMANCE on pg 4-113

Crew may reset SM alert limits to annunciate end of depressurization, if desired

PARAMETER NAME	S/N ID	SN ALERT LOW
CRYO 02 P TK1	0451100	700
H2 P TK1	0452100	180

ASCENDING NODE

ORR: 91
MET: 005:15:21:13
LOW: 84.5 M

ORIGINAL PAGE IS
OF POOR QUALITY

UPLINK
ORBITER S.V.
TPR
BLOCK DATA
WEATHER PRO
B-23/93-96

INFORM CREW
SM CKPT -
READ/NOT READ

UPDATE
H2O SPLY DUMP
QTY TK A S B

STS-4 DETAILED

NET
DAY 005

SCSI STON

NOTES

MCC

PLT

CDR

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 92
MET: 005:16:51:41
LDN: 107.7 W

RA (82)
RUTO
NORH
RT 0.2
DB 5.0

16:10

16:20

16:30

16:40

16:50

17:00

8010M TO SUN

MEAL

MEAL

ORB
92

MW
LI
XL
TI

TIME AIR TIR

15005
134
134
134

CDR

179

NOTES

FIRE/SMOKE DETECT/SINPRESS TEST
(ORBIT OPS C/L, EPS)

```

DEF POWER_IP (80A)
R11:H  DFI PCH CONT 1,2,3 SCSC (three) - ON

```

TRANSLATOR, C/W ARP TEST
(ORBIT OPS C/L, EPS)

```
DEFI POWER DOWN
R11:H DEFI PCH CONT 1,2,3 SCSC (three) - OFF
```

UPDATE
DMS/RCS
ICONNECT
CONFIG

CABIN HEAT EXCHANGER/SLURPER
FREE H2O INSPECTION

1. Open vent duct access door (outboard of cabin heat exchanger) and loosen lower vent cap clamp (3/8 in deep socket)
 2. Remove vent cap and inspect for free water
 3. No water - reinstall cap/secure
- Water observed - advise MCC

UNSUBJECT: I (R) DHS to PCS
(ORBIT PKT C/L, PCS)

CHANGE DAP A: DB ATT NORTH - 3"

AUTO NWR TO INL PLNCH/BU NEW RTT \$1
 NWR OPTION: R * 252.9
 P * 252.5
 Y * 348.9

DAP: A/AUTO/NORM
(17:57) Initiate HVR

ORIGINAL PAGE IS
OF POOR QUALITY

STS-4 DETAILED

NET 8 CDR

CDR

PLT

NOTES

MCC

SOLSTON

DAY 005

18:00

AS (82)

AUTO

NORR

RT 0.2

D8 3.0

18:10

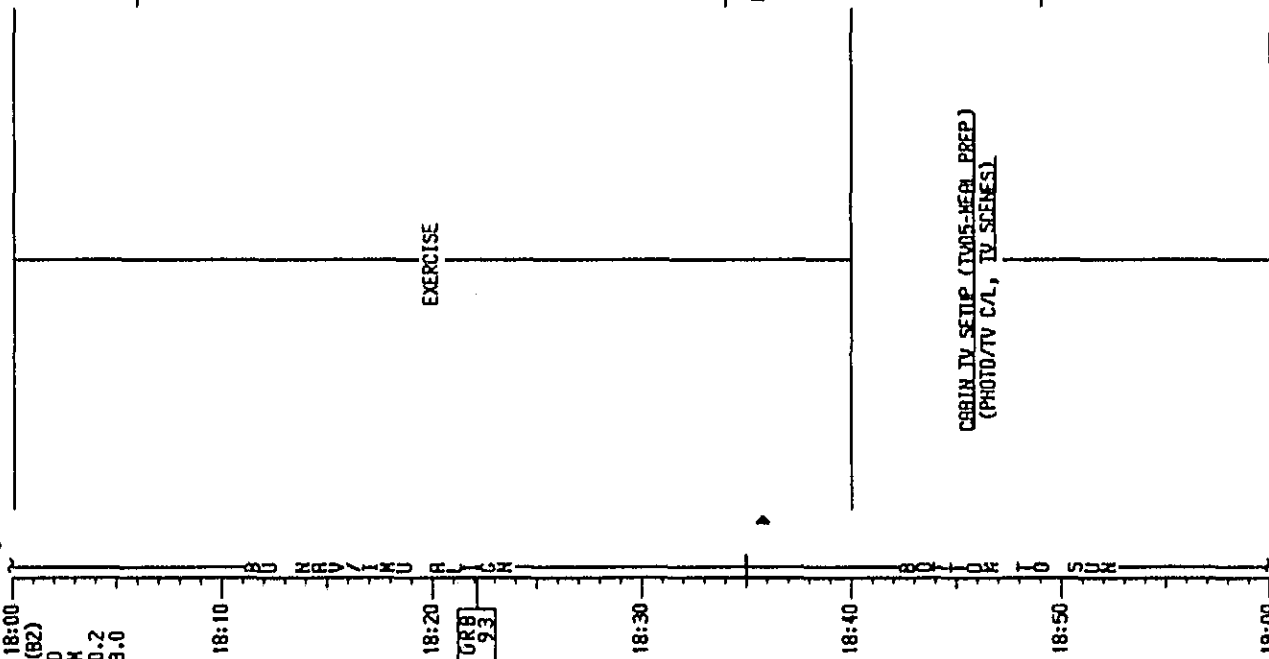
18:20

18:30

18:40

18:50

19:00



TRX ID:	1	2	3
RNC			
A X	()	()	()
A Y	()	()	()
A Z	()	()	()

EXECUTION TIME: / /

EXERCISE

AUTO NAVR TO 275 ALT

MNR OPTION: R * 246.8

P * 288.6

Y * 351

DAP: R/AUTO/NORR

(18:22) Initiate MVR (After Star

STAR ID: -Y: 20, ARCTURUS 41 LOS)

-Z: 17, ARCTURUS

After Star 20 & 17 LOS

[GNC 22 S TRK/DRBS CNT]

SHUTTER MAN OP - ITEM 15, 16 (no x)

S TRK -Y, -Z: STAR TRK - ITEM 3, 4 (x)

ASCENDING NODE

OSR: 93

NET: 005:18:22:09

LOC: 130.8 M

Stars 41 & 34

available from

5/17:32 to 5/18:19

Star 41 available

until 5/18:21

Star 17 available

until 5/18:26

Star 20 available

until 5/18:33

ORIGINAL PAGE IS
OF POOR QUALITY

SCS 15 BS
MILLS

CDR

PIT

334

NOTES

CSBIN TV SET (TMO5-MEM PRFP)
(PHOTO/TV C/L, TV SCENES)
Live at MIL

A6 (B2)
AUTO
NORM
RT 0.2
DB 3.0

ORIGINAL FROM
OF POOR QUALITY

AUTO MNR TO BACKUP NEW ATT #1
 MNR OPTION: R * 255
 P * 255.8
 Y * 0.6
 DAP: R/AUTO/NORM
 (19:30) Initiate MNR

BACKUP ORBITAL NAV TEST (FTO 476-01)
 GEN 22 S IRK/CORS ONTL
 S TRX -Y, -Z: TERM IDLE - ITEM 9, 10
 SHUTTER MAN OP - ITEM 15, 16 (K)
 STAR ID: -Y: 41, DENEBOIA

PHOTO HALL TO ALL NEW ATT 2
 HALL OPTION: R = 245.8
 P = 288.5
 Y = 351

DAP: A/AUTO/NORM
(19:52) Initiate MWR (After Star 41 LOS)
STAR ID: -Y: 20, ARCTURUS
-Z: 17, ARKUX
Y: 351

CRYO 02 H2 TX 4 HTRS A (two) - AUTO
(Before PRSD PERFORMANCE)
PRSD PERFORMANCE
(15% LEVEL - FTO 445-03)
(ORBIT OPS C/L, EPS FID)
Performa Step 1 - POWERUP

ASCENDING NODE
ORR: 94
MET: 005:19:52:38
LOW: 154.0 M

Star 41 available
until 5/19/51

Star 17 available
until 5/19:57

Star 20 available
until 5/20:04

STS-4 DETAILED

COR

PLT

NOTES

MCC

ORIGINAL PAGE 13
OF POOR QUALITY

NET
DAY 005

20:00

R4 (B2)
AUTO
NORM
RT 0.2
DB 5.0

RLier Star 20.8 17.105
[CNC 22 S TRK/CORR ENL]
SHOOTER MEN OP - ITEM 15, 16 (no x)
S TRK -Y, -Z: STAR TRK - ITEM 3, 4 (x)
CHANGE DDP A: DB ATT NORM -5.0 DB
BLIND MNR IN -751 ATT (FTO 412-01)
MNR OPTION: R = 321.2
P = 224
Y = 51.4
DAP: R/AUTO/NORM
(20:07) Initiate MNR

REG PREP (Due Card)
Prepare DAY 7, MEAL B

PRSD PERFORMANCE

TPR
BLACK DATA
WEATHER PRO
B-21/97-100
LELINK
ORBITTER S.V.

REG PREP (Due Card)
Prepare DAY 7, MEAL B

PRSD PERFORMANCE

TPR
BLACK DATA
WEATHER PRO
B-21/97-100
LELINK
ORBITTER S.V.

REG PREP (Due Card)
Prepare DAY 7, MEAL B

PRSD PERFORMANCE

TPR
BLACK DATA
WEATHER PRO
B-21/97-100
LELINK
ORBITTER S.V.

REG PREP (Due Card)
Prepare DAY 7, MEAL B

PRSD PERFORMANCE

TPR
BLACK DATA
WEATHER PRO
B-21/97-100
LELINK
ORBITTER S.V.

REG PREP (Due Card)
Prepare DAY 7, MEAL B

PRSD PERFORMANCE

TPR
BLACK DATA
WEATHER PRO
B-21/97-100
LELINK
ORBITTER S.V.

REG PREP (Due Card)
Prepare DAY 7, MEAL B

PRSD PERFORMANCE

TPR
BLACK DATA
WEATHER PRO
B-21/97-100
LELINK
ORBITTER S.V.

REG PREP (Due Card)
Prepare DAY 7, MEAL B

PRSD PERFORMANCE

TPR
BLACK DATA
WEATHER PRO
B-21/97-100
LELINK
ORBITTER S.V.

REG PREP (Due Card)
Prepare DAY 7, MEAL B

PRSD PERFORMANCE

TPR
BLACK DATA
WEATHER PRO
B-21/97-100
LELINK
ORBITTER S.V.

REG PREP (Due Card)
Prepare DAY 7, MEAL B

PRSD PERFORMANCE

TPR
BLACK DATA
WEATHER PRO
B-21/97-100
LELINK
ORBITTER S.V.

4-114

5/11/782 515476IN

STS-4 DETAILED

NET
DAY005
21:00

SQLS
STDA

R4 (B2)
AUTO
NORM
RT 0.2
DB 5.0

21:10

21:20

21:30

21:40

21:50

22:00

ORB
95

8 Q 1 0 M 1 0 S U M

H R M T T T T T T

G O S
T T T
B G T
U D T
C X I
I I I

T T T M L X B D R

T T T S

T N H S

PLT

MCC

NOTES

ASCENDING NODE
ORB: 95
MET: 005:21:23:06
LDN: 177.1 W

NEAL

NEAL

ORIGINAL FILED
OF POON GUY

STS-4 DETAILED PLT

NET
DRY005
22:00

R4 (B2)
AUTO
NORM
RT 0.2
DB 5.0

22:10

P5 (B2)
MAN
NORM
DISC
RT 1.0
DB 5.0

R4 (B2)
AUTO
NORM
RT 0.2
DB 5.0

22:40

22:50

ORB
96

23:00

CONNECT: J (R) DMS to RCS
(ORBIT PKT C/L, RCS)

PRESD PERFORMANCE
(15% LEVEL - FTO 445-03)
(ORBIT OPS C/L, EPS ETD)
Perform Steps 2 and 3
(PERFORM MVR & POWERDOWN)

NOTE: Do not config for
VERN DRP

AUTO MVR TO BURN ALTITUDE
MVR OPTION R- 315.3
P- 226.9
Y- 53.2
DRP: R/AUTO/NORM
(22:32) Initiate MVR

PERFORMS THERMAL SINKBACK
(2 FND/1 AFT RCS ENG - FTO 412-06,08)
(ORBIT OPS C/L, RCS ETD's)
Perform Step 2 (PERFORM TRANSLATIONS)
(22:46) -X TRANS (30 sec)
-X TRANS (30 sec)

C3 JDFI RCORS MB HSN - STBY (16-bp)
CONNECT RETURN (OPS 2.3)
(ORBIT PKT C/L, RCS)

C3 JDFI RCORS PCN - NY SAMP
(10 min after FRCG/ARCOS Test)

NOTES

MCC

ORIGINAL PAGE 10
OF POOR QUALITY

UPDATE
DMS/RCS
CONNECT
CONFIG

POST PRSD PERFORMANCE ①
CRYO 02 TX1 & 2 HTRS A (two) - AUTO
02 TX1 & 2 HTRS A,B (four) - AUTO
02, H2 TX3 HTRS A (two) - AUTO
02, H2 TX4 H.35 A (two) - OFF

If crew sets SA alert limits to
annunciate end of depressurization

PARAMETER NAME	SA ID	SA ALERT LVL
CRYO 02 TX P TK1	0451100	575
H2 TX P TK1	0452100	165

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, TER P28/17)

ASCENDING NODE
ORB: 96
MET: 005:22:53:34
LON: 159.7 E

STS-4 DETAILED

NOTES

MCC

PLT

CDR

MET B C M
DAY 005

ELIOT MNR IN - ZSL RIL (FTD 412-01)
MNR OPTION: R - 321.2
P - 224
Y - 51.4
DAP: R/AUTO/NORH
(23:02) Initiate MNR

R4 (B2)
AUTO
NORH
RT 0.2
DB 5.0

PRIVATE MEDICAL COMMUNICATION

PRIVATE MEDICAL COMMUNICATION

ORIGINAL PAGE 10
OF POOR QUALITY

NET 1000000
DAY006

CDR

PLT

NOTES

GAS DEACTIVATION (Cue Card)
(FSO S435-01)

STONIS SUMNER (Cue Card)

AT LOAD DUCT HIR - A
(S88 THERMAL EVAP)
(30 min prior to FES ENABLE
for PL80 OPS)

FD 8 GO/NO GO

MEAL PREP (Cue Card)
Prepare DAY 7, MEAL C

PLAN PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)
(ORBIT OPS C/L, PLBD FTO's)
Theodolite sightings
during PLBD operations

PLBD PERFORMANCE
(THERMAL GRADIENT - FTQ 451-04)
(ORBIT OPS C/L, PLBD FTO's)
Theodolite sightings
during PLBD operations

ASCENDING MODE
ORB: 97
MET: 006:00:24:04
LON: 136.6 E

ORIGINAL PAGE IS
OF POOR QUALITY

INFORM CREW
FD 8 GO/NO GO

811-2

MIJYIS 28/11/5

STS-4 DETAILED

MET
DAY 006
01:00

SELS
STON

A4 (B2)
AUTO
NORA
RT 0.2
DB 5.0

01:10

01:20

01:30

01:40

01:50

01:58

02:00

ACN I I

T: BOT I I I

CHN

PLT

CDR

MCC

NOTES

UPLINK
ORBITER S.V.

PLBD THERMAL GRADIENT (ORBITER TOP TO
BOTTOM) PERFORMANCE (FTO 451-04)

PLBD THERMAL GRADIENT (ORBITER TOP TO
BOTTOM) PERFORMANCE (FTO 451-04)

ORIGINAL PAGE 19
OF POOR QUALITY

ASCENDING NODE
DB: 98
MET: 006:01:54:32
LUN: 113.5 E

MET
RAY006
R4 (B2)
AUTO
NORR
RT 0.2
DB 5.0

SQ.51
STON

STS-4 DETAILED

CDR

PLT

MCC

NOTES

PLBD THERMAL GRADIENT (ORBITER TOP TO
BOTTOM) PERFORMANCE (FTO 451-04)

PLBD THERMAL GRADIENT (ORBITER TOP TO
BOTTOM) PERFORMANCE (FTO 451-04)

SUPPLY WATER TIME
(ORBIT OPS C/L, ENLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =

TER
BLOCK DATA
WEATHER PRO
B-25/101-104
UPDATE
H2O SPLY DUMP
QTY TKS A & B

ORIGINAL PAGE 15
OF POOR QUALITY

NERL

NERL

STS-4 DETAILED

MET
03:00
03:10
03:20
03:30
03:40
03:50
04:00

SCSL STDM

DRY006

CDR

PLT

NOTES

MCC

R4 (B2)
AUTO
NORM
RT 0.2
DB 5.0

WERL

WERL

LI HI L980 DUCT HTR - OFF
(30 min after HI L980 EVAP - OFF)

CREW STOW
(ORBIT OPS C/L, CREW SYS)

CREW STOW
(ORBIT OPS C/L, CREW SYS)

ORB
99

ASCENDING NODE
ORB: 99
MET: 006:03:25:00
LON: 90.3 E

ORIGINAL PAGE 12
OF POOR QUALITY

NET 13H
DAY006
1
CITY
NR

WOLFS ISLES

DOXHD

CDR

P-I

22

NOTES

A4 (B2)
AUTO
NORM
RT 0.2
D8 5.0

04:10

MOIS Nibbi

MOLES, STOW

RCSS/RCSS THEOREM SOURCE
(2 FWD/1 AFT RCS ENG - FTO 412-06.08)
(ORBIT OPS C/L, RCS FTO's)
Perform Step 3 (RECONFIG TO NOMINAL)

REFERENCE DAP R: D8 ATT VERN - 1* D8
 AUTO MVR TO JMU PLGN ATT
 MVR OPTION: R * 261
 P * 349.6
 Y * 39
 DAP: R/AUTO/VERN
 (04:32) Initiate MVR

RT 0.2
DB 1.0
AUTO
VERN
A1 (B1)

WAL ALIGNMENT - S TRK
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 43, RASASA
-Z: 28, AL N
ANC DIF: 85.0

4.4 DEL/SEC.PTC.XPDP - INITIATE
FTO 412-01)
MNR OPTION: R* 8.6
 P* 226.8
 Y* 53
DAP: R/AUTO/VERN
(04:52) Initiate MNR

0201
028

05:50

ORIGINAL PAGE IS
OF POOR QUALITY

Stars 43 & 28
available from
6/04:34 to 6/05:13

第 11 章 数据库系统

TRX ID: 1, 2 ANG ERR 3

4X1

7 Y

11-11-11

() _ . _ () _ . _ ()

EXECUTION TIME:

ASCENDING NODE

008: 100
001: 820
NET: 006:04:55:78

LOW: 67.2 E

STS-4 DETAILED

NET B C H
DAY 006 T E R

NOTES

MCC

PLT

CDR

When MNR to PTC ATT complete,
CHANGE DDP R:

ROT DISC RATE VERN - 0.4 "/SEC
BODY VECT .4

Initiate ROT

MSL DEACTIVATION (Cue Card)

(FSO 5441-01)

POST OPERATIONS DOCUMENTATION

ORBIT DEORBIT PREPARATION
(OPERATIONS C/L, TABLE)

S-BAND ANTENNA PATTERN
(FTO 471-01)
(ORBIT OPS C/L, CREW ETO)

Configure for NAV
AOS: 6/05:26
LOS: 6/05:34

DELINK
ORBITER S.V.

CABIN TV STOW
MF57E/ Stow both cameras
MF57C

CD2 ABSORBER REPLACEMENT
(9 into A)

SINGLE C2 OPS OPS
(ORBIT OPS C/L, OPS)

FILE CELL PURGE - AUTO (Cue Card)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ORBITER S.V.
OF POOR QUALITY

STS-4 DETAILED

MET OFFER
DAY 006

NOTES

MCC

PLT

CDR

T R2 (B1)
S AUTO
A VERN
R RT 0.4
D8 1.0

ASCENDING MODE
ORB: 101
MET: 006:06:25:56
LOW: 44.0 E

ORIGINAL PAGE 10
OF POOR QUALITY

MCC ONLY
COORD CDR/FDR
LIMITS DLEAMP
FOR CREW SLEEP

DELINK
SPC LOAD -
1ST COMM
ALERT
CMD
RCOR SLEEP
CONFIC

PRE SLEEP ACTIVITY

PRE SLEEP ACTIVITY

SLEEP

SLEEP

4-124

5/11/82 STS/7/1R

STS-4 DETAILED

MET PCM
DRY006

07:00 07:10 07:20 07:30 07:40 07:50 08:00

R2 (81)
AUTO
VERN
RT 0.4
DB 1.0

DRB
102

SOLS STIM

THS

RCO

RCN

PLT

SLEEP

MCC

NOTES

ORIGINAL PARTIAL
OF POOR QUALITY

ASCENDING NODE
ORB: 102
MET: 006:07:56:24
LON: 20.9 E

4-125

5/14/82 STS/IN

STS-4 DETAILED

CDR

PLT

NOTES

MCC

ORIGINAL PAGE 10
OF POOR QUALITY

ASCENDING NODE
ORB: 103
MET: 006:09:26:52
LON: 2.2 N

ASCENDING NODE
ORB: 104
MET: 006:10:57:20
LON: 25.3 N

ASCENDING NODE
ORB: 105
MET: 006:12:27:48
LON: 48.5 N

TER
BLOCK DATA
HEATHER PRO
8-26/105-108

UPLINK
ORBITER S.V.

SLEEP

SLEEP

08:00
R2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

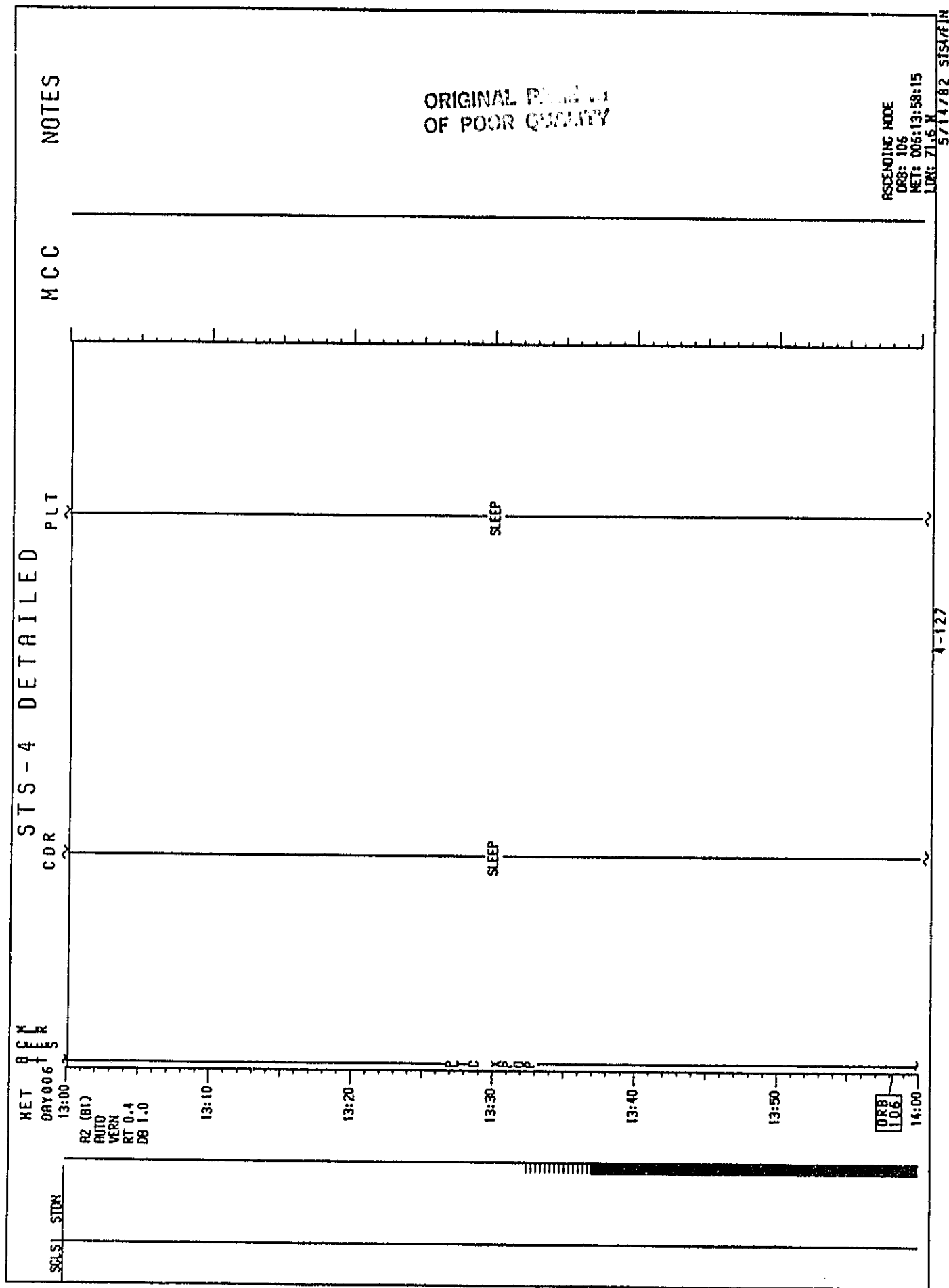
09:00
ORB 103

10:00
ORB 104

11:00
ORB 105

12:00

13:00



NET 90006
KCS
K.R

334

173

CDR

ORIGINAL FILED IN
OF POOR QUALITY

UPLINK
ORBITER S.V.

0038 1040/0038
SM CKPT -
REC'D/NOT REC'D

DEBTS

43375

POST SLEEP ACTIVITY
(ORBIT OPS CAL, CREW SYS)

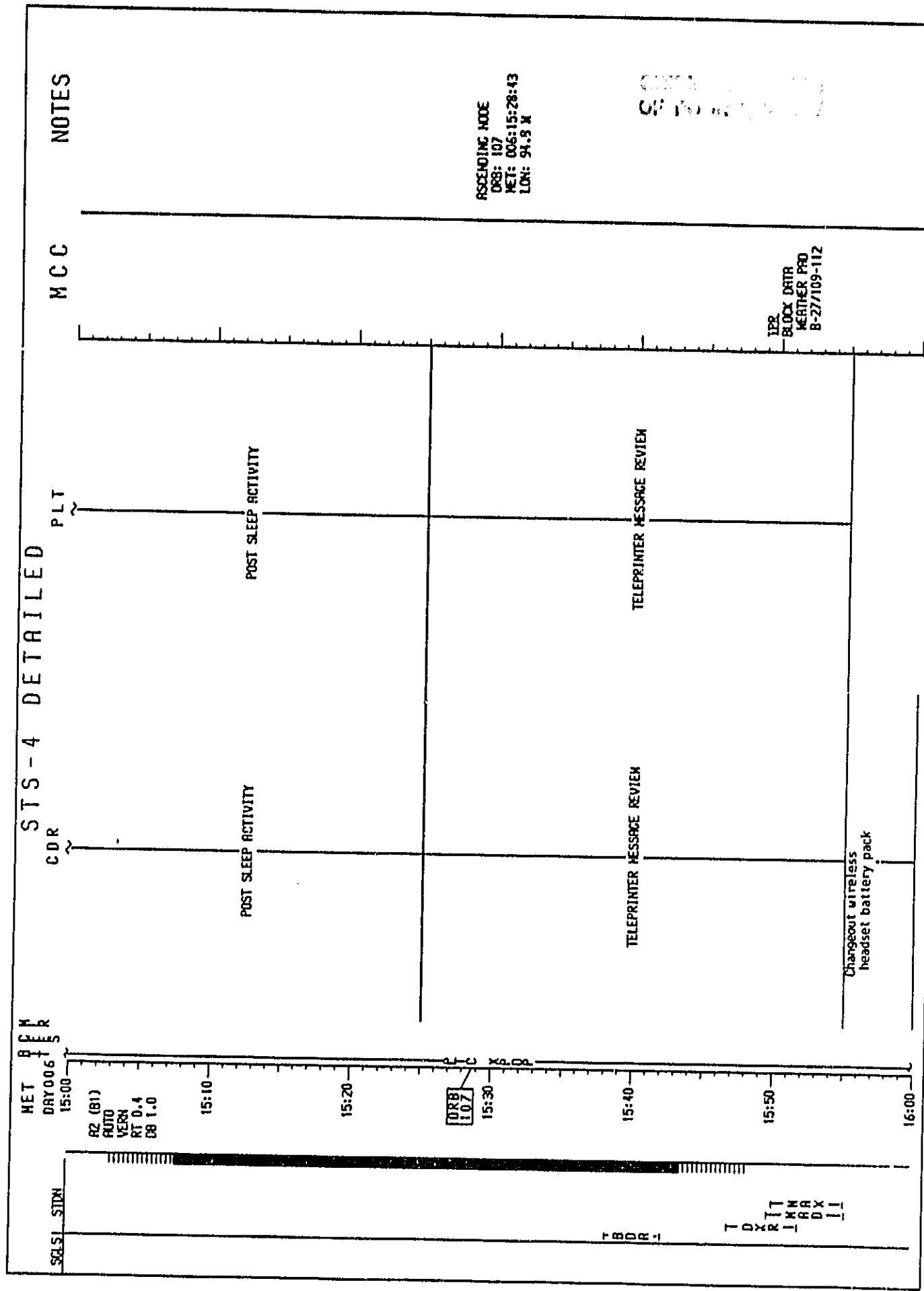
POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

A2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

INDEX

YARR 1-1



STS-4 DETAILED

PLT

HET 06:00
DAY 006

COR

M31C VAC VENT NOZ HTR - OFF

AUTO MNR TO IMU ALIGN BIT

MNR OPTION: R - 248.2
P - 248.9
Y - 339.4

Change DPP R: ROT DISC RATE VERN - 0.2
DAP: R/AUTO/VERN
(16:02) Initiate MNR

R5/D5 Unstow DEORBIT POP (2)

STAR TRACKER SELF-TEST

(ORBIT OPS C/L, CMC)
IMU ALIGNMENT - S TRX
(ORBIT OPS C/L, CMC)
STAR ID: -Y: 41, DENEROLA
-Z: 50, RUIOR
RNG DIF: 85.0

AUTO MNR TO -XSL BIT

MNR OPTION: R - 252.6
P - 284.1
Y - 341

DAP: R/AUTO/VERN
(16:22) Initiate MNR

FUEL CELL PIECE - RUM (One Card)

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)

Dump to:
DTP: TRS R & B
QTY A = QTY B =

REPORT: IMU ALIGN RESULTS

MEAL

MEAL

ORIGINAL PAGE 11
OF POOR QUALITY

RESCENDING MODE

ORR: 108

NET: 006:15:59:11

LOW: 117.9 M

5/14/82 SISU/HIN

4-130

NOTES

MCC

Stars 41 & 50
available from
6/16:10 to 6/16:54

UPDATE
H2O SPLY DUMP
QTY TR A & B

IMU ALIGNMENT

TRX ID: 1 --- RNG ERR --- 3
RNG 1 --- 2 ---

A X () --- () --- () ---

A Y () --- () --- () ---

A Z () --- () --- () ---

EXECUTION TIME: --- / --- / ---

RPT: IMU ALIGN RESULTS ---

ORR
108

[illegible]

CONTINGENCY TIMELINES

HIGH PRIORITY MISSION.....	5-3
ONE-DAY EXTENSION.....	5-55
24 HOURS AFTER EXTENSION DAY.....	5-93

HIGH PRIORITY
MISSION

HIGH PRIORITY MISSION

The High Priority Mission (HPM) is designed as a 74.3 hour flight lasting 3.5 flight days (FD). To enter HPM, complete the nominal FD 1 through 0/17:30. Begin HPM at 0/17:30.

HPM ACTIVITIES

FLIGHT DAY 1 - NOMINAL CAP FD 1 THROUGH SLEEP TO 0/17:30.

FLIGHT DAY 2 - BEGIN HPM SECTION AT 0/17:30. ACTIVITIES ARE SIMILAR TO NOMINAL CAP UNTIL 1/00:15 WHEN CFES SAMPLE 6 IS RUN.

- o ATTITUDES
 - o GRAVITY GRADIENT (8 HRS vs 12 HRS)
 - o BOTTOM SUN (26 HRS vs 33 HRS)
- o IECM CONTAMINATION SURVEY (1 HR) SCHEDULED WITH TOP SUN FOR WARM THERMAL ENVIRONMENT
- o IECM PLUME SURVEY (1 HR) IN BOTTOM SUN
- o HOT FIRE TEST
- o MLR DEACTIVATION (19.5 HRS)

FLIGHT DAY 3 -

- o FRCS THERMAL SOAKBACK, PULSE MODE - F3F
- o IECM GAS RELEASE
- o FRCS THERMAL SOAKBACK, TWO FORWARD ENGINES - F2F, F3F
- o FCS CHECKOUT, PART 1 AND 2. STAY ON TAIL ONLY JETS SO NO PRCS FIRINGS IN FORWARD POD. (REQUIREMENT OF FRCS THERMAL SOAKBACK TESTS)
- o RADIATOR PERFORMANCE TEST. STOW RADIATORS 3 HRS PRIOR TO PLBD CYCLE TEST, THEN DEPLOY AFTER PLBDs OPENED
- o PLBD CYCLE TEST AT THE END OF BOTTOM SUN THERMAL TEST
- o PTC FOR SLEEP

FLIGHT DAY 4 -

- o TAIL SUN AFTER MORNING IMU ALIGN
- o NOMINAL DEORBIT PREP (5 HRS)

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OF POOR QUALITY

FLIGHT SYS 4												EDITION FINAL												PUB. DATE 5/14/82											
HI PRIORITY MISSION																																			
NET 6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18											
FD 1	REQ. OPS 1 THROUGH						POST INSERTION CDS ACTIVATION						PRE SLEEP ACT						SLEEP						PSR SLEEP ACT										
FD 2	REQ. OPS 1 THROUGH						POST INSERTION CDS ACTIVATION						PRE SLEEP ACT						SLEEP						PSR SLEEP ACT										
FD 3	REQ. OPS 1 THROUGH						POST INSERTION CDS ACTIVATION						PRE SLEEP ACT						SLEEP						PSR SLEEP ACT										
FD 4	REQ. OPS 1 THROUGH						POST INSERTION CDS ACTIVATION						PRE SLEEP ACT						SLEEP						PSR SLEEP ACT										
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GMT	(D:H:M)	MET	(D:H:M)	CDT	(D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE		FLIGHT	EDITION	PUB. DATE
									JUNE 27, 1982	STS-4			
HI PRIORITY MISSION													
CDR	ASCENT	16	17	18	19	20	21	22	23	24	25	26	27
PLT	ASCENT	16	17	18	19	20	21	22	23	24	25	26	27
DAY/NIGHT	ORBIT												
EARTH TRACE M/SAR													
GSTDN COVERAGE													
SGLS COVERAGE													
OPS DEBR KSC EDM													
ATTITUDE													
MANEUVERS TV/VTR CFES													
MLR													
<p>NOTES:</p> <ul style="list-style-type: none"> PLBD CONFIG POST ASCENT DOC ST TEST FTD 433-01 EATLORO BAY LIVER PERFORMANCE FTD 434-01 FLIGHT DEBRIS INVESTIGATION FTD 451-01 PLBD INITIAL FLIGHT TEST PAR-UP RWS TO TEMP MODE PLBD COOLING OFF FTD 441-02 INERTING VERIFICATION FTD 5442-01 MLR OPERATION FTD 477-02 PASSIVE GRAVITY GRADIENT INITIALIZATION FTD 441-02 INERTING VERIFICATION FTD 5442-01 MLR OPERATION FTD 5435-01 GAS OPERATION FTD 477-02 PASSIVE GRAVITY GRADIENT INITIALIZATION FTD 441-02 INERTING VERIFICATION FTD 5442-01 MLR OPERATION FTD 5435-01 GAS OPERATION FTD 477-02 PASSIVE GRAVITY GRADIENT INITIALIZATION FTD 441-02 INERTING VERIFICATION FTD 5442-01 MLR OPERATION FTD 5435-01 GAS OPERATION FTD 477-02 PASSIVE GRAVITY GRADIENT 													

GMT (D:H:M)		MET (D:H:M)		COT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE			
179:03:00/ 179:15:00		000:12:00/ 001:00:00		178:22:00/ 179:10:00		2/ 178		0.2		●		JUNE 28, 1982		STS 4		FINAL		5/14/82			
HI PRIORITY MISSION																					
GMT : 179 3		1		6		8		9		10		11		12		13		14		15	
FD 1		13		15		17		18		19		20		21		22		23		0	
MET : 000 12		13		15		17		18		19		20		21		22		23		0	
CDR		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP	
PLT		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP	
DAY/NIGHT		ORBIT		ACQ UP/DOWN		EARTH TRACE		W/SAR		CSTOM COVERAGE		SGLS COVERAGE		OPS		GEORR KSC		EDM		ATTITUDE	
TV/VTR		CFES		MLR		NOTES:															

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CMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		(D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE					
180:03:00/ 180:15:00		001:12:00/ 002:00:00		179:22:00/ 180:10:00				7/179		2.1				JUNE 29, 1982		STS 4		FINAL		5/14/82					
HI PRIORITY MISSION																									
CMT : 180 3		4		5		6		7		8		9		10		11		12		13		14		15	
FD 2		13		14		15		16		17		18		19		20		21		22		23		24	
MET : 001 12		13		14		15		16		17		18		19		20		21		22		23		24	
CDR		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP	
PLT		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP	
DAY/NIGHT		25		26		27		28		29		30		31		32		33		34		35		36	
ORBIT		25		26		27		28		29		30		31		32		33		34		35		36	
EARTH TRACE W/SRA		25		26		27		28		29		30		31		32		33		34		35		36	
GSTDN COVERAGE		25		26		27		28		29		30		31		32		33		34		35		36	
SCLS COVERAGE		25		26		27		28		29		30		31		32		33		34		35		36	
OPS DEGRB KSC EDW		25		26		27		28		29		30		31		32		33		34		35		36	
ATTITUDE		25		26		27		28		29		30		31		32		33		34		35		36	
MANEUVERS		25		26		27		28		29		30		31		32		33		34		35		36	
TV/VTR		25		26		27		28		29		30		31		32		33		34		35		36	
CFES		25		26		27		28		29		30		31		32		33		34		35		36	
MLR		25		26		27		28		29		30		31		32		33		34		35		36	
NOTES:		25		26		27		28		29		30		31		32		33		34		35		36	

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
180:15:00/ 181:03:00		002:00:00/ 002:12:00		180:10:00/ 180:22:00		3/180		CDT 3.5		●		JUNE 29, 1982		STS 4		FINAL		5/14/82	
HI PRIORITY MISSION																			
GMT : 180 15		16		17		18		19		20		21		22		23		24	
FD 3		0		1		2		3		4		5		6		7		8	
MET : 002		0		1		2		3		4		5		6		7		8	
CDR		MERL		FCS CHECKOUT		FCS PERIOD		FCS PERIOD		FCS PERIOD		FCS PERIOD		FCS PERIOD		FCS PERIOD		FCS PERIOD	
PLT		MERL		FCS CHECKOUT		FCS PERIOD		FCS PERIOD		FCS PERIOD		FCS PERIOD		FCS PERIOD		FCS PERIOD		FCS PERIOD	
DAY/NIGHT		33		34		35		36		37		38		39		40		41	
ORBIT		33		34		35		36		37		38		39		40		41	
EARTH TRACE		33		34		35		36		37		38		39		40		41	
M/SRA		33		34		35		36		37		38		39		40		41	
CSTON COVERAGE		33		34		35		36		37		38		39		40		41	
SCLS COVERAGE		33		34		35		36		37		38		39		40		41	
OPS DEORB KSC		33		34		35		36		37		38		39		40		41	
EDM		33		34		35		36		37		38		39		40		41	
ATTITUDE		33		34		35		36		37		38		39		40		41	
MANEUVERS		33		34		35		36		37		38		39		40		41	
TV/VTR		33		34		35		36		37		38		39		40		41	
CFES		33		34		35		36		37		38		39		40		41	
MLR		33		34		35		36		37		38		39		40		41	
NOTES:		<p>● CHARGEOUT</p> <p>● PL DEORBIT PREP</p> <p>● FSD 5435-01 GAS OPERATION</p> <p>● FTO 412-01 ATT HOLD THERMAL RESPONSE</p> <p>● FSD 5435-01 GAS OPERATION</p> <p>● CIRC PUMPS TO OFF</p>																	

HI 47515 28/9/59

GMT (D:H:M)		NET (D:H:M)	CDT (D:H:M)		CDT (D:H:M)		FD/ DQY	BETA	MOON	HOUSTON DATE		FLIGHT	EDITION	PUB. DATE	
181:15:00/ 182:03:00		003:00:00/ 003:12:00	181:10:00/ 181:22:00		181:10:00/ 181:22:00		4/ 181 CDT	6.4		JUNE 30, 1982		STS 4	FINAL	5/14/82	
HI PRIORITY MISSION															
GMT : 181 15		17	18	19	20	21	22	23	24	25	26	27	28	29	30
FD 4		1	2	3	4	5	6	7	8	9	10	11	12	13	14
MET : 003 0		1	2	3	4	5	6	7	8	9	10	11	12	13	14
CDR	ENTRY	BURN PREP	ENTRY												
PLT	ENTRY	BURN PREP	ENTRY												
DAY/NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY
ORBIT	49	50	51	52	53	54	55	56							
EARTH TRACE W/SAR	[Handwritten notes and diagrams]														
CSION COVERAGE	[Handwritten notes and diagrams]														
SCIS COVERAGE	[Handwritten notes and diagrams]														
OPS DEORB ZSC EDM	[Handwritten notes and diagrams]														
ATTITUDE TO SUM	[Handwritten notes and diagrams]														
MANEUVERS TV/VTR CFES MLR	[Handwritten notes and diagrams]														
NOTES:															

NOTES

MCC

HI PRIORITY MSN

PLT

CDR

NET AFTER

DAY 000

AI (BI)
AUTO
VERA
RT 0.2
DB 1.0

17:10

17:20

17:30

17:40

17:50

19:00

SQSI STDN

ORIGINAL RECORD
OF POWER OPERATIONS

ASCENDING NODE
ORB: 13
MET: 505:17:44:29
LOW: 79.0 N

SLEEP

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

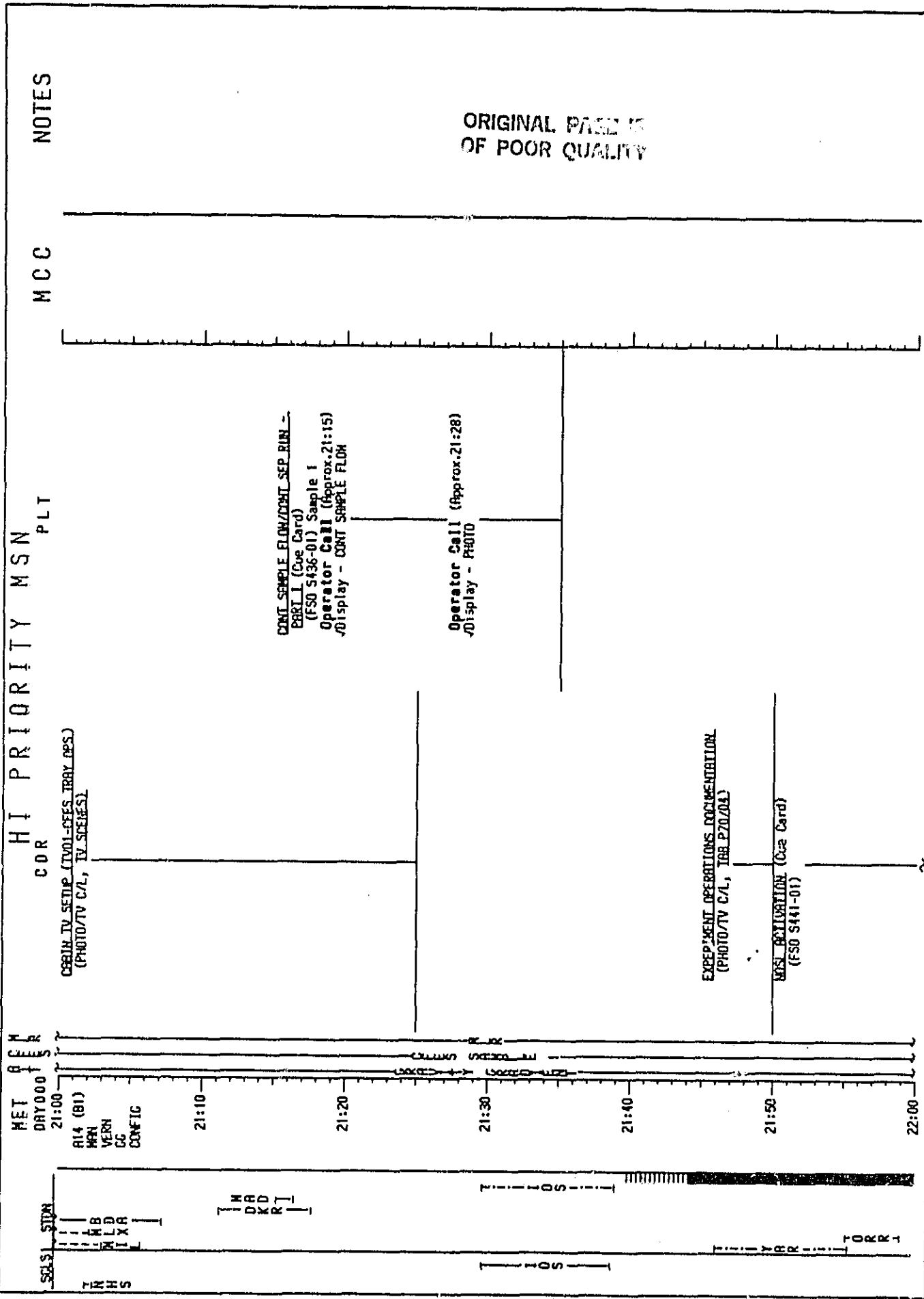
SUPPLY WATER TIME
(ORBIT OPS C/L, EELS)
Dump TKS R & B
Dump to:
QTY R = QTY B =

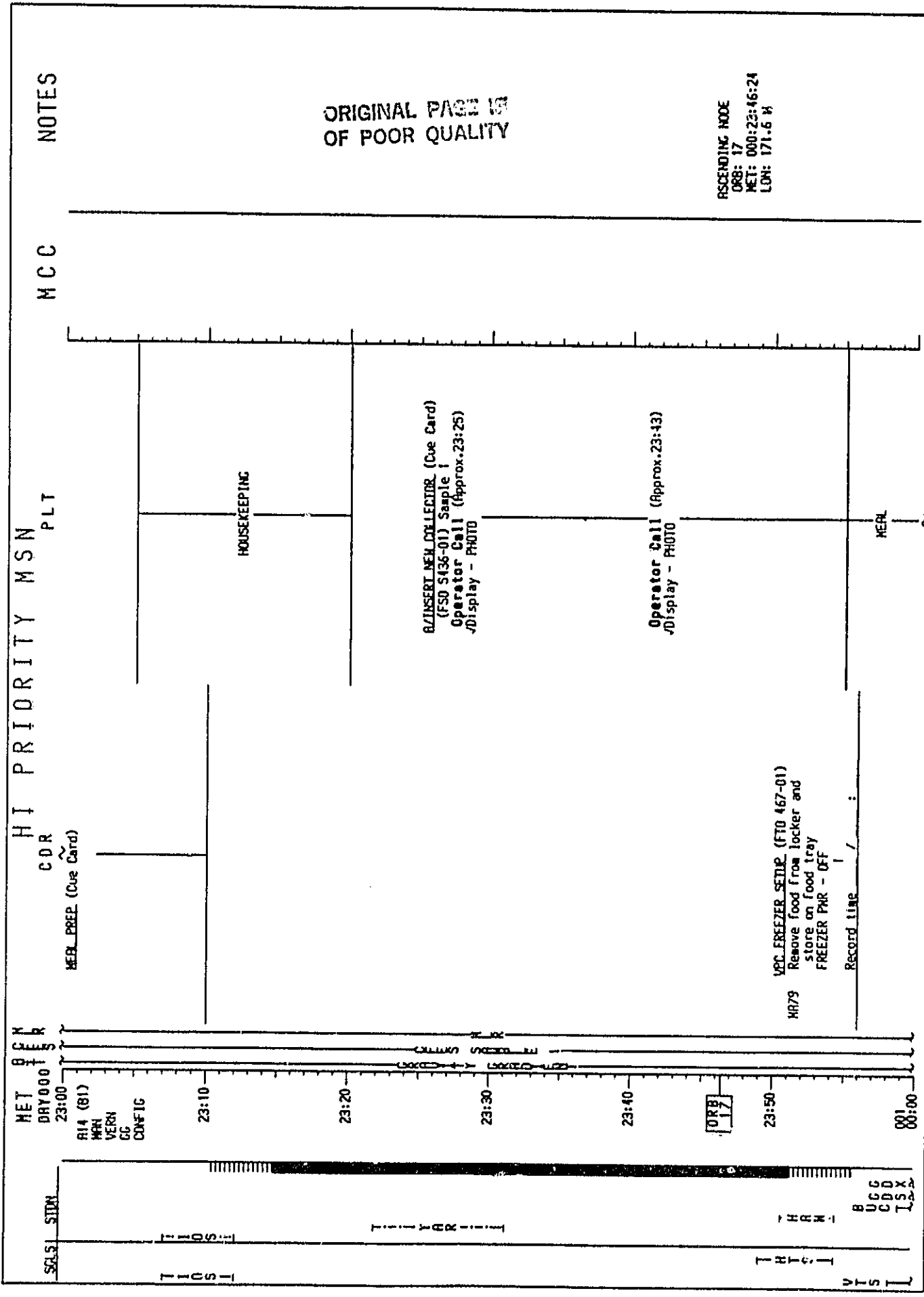
VEDDIE
H2O SPILY DUMP
QTY TK R & B

5-12

5/14/82 SYS/IN

HI PRIORITY MSN		PLT	MCC	NOTES
<p>SET: STDN</p> <p>18:00 AI (81) AUTO VERN RT 0.2 DB 1.0</p> <p>18:10</p> <p>18:20</p> <p>18:30</p> <p>18:40</p> <p>18:50</p> <p>19:00</p>	<p>CDR</p> <p>POST SLEEP ACTIVITY (ORBIT OPS C/L, CREW SYS)</p>	<p>PLT</p> <p>POST SLEEP ACTIVITY (ORBIT OPS C/L, CREW SYS)</p>	<p>MCC</p> <p>INSTR. CREW SM CRT - REQD/NOT REQD</p>	<p>ORIGINAL COPY IN OF FOUR QUALITY</p>
<p>TELEPRINTER MESSAGE REVIEW</p>		<p>TELEPRINTER MESSAGE REVIEW</p>		
<p>ADD MSG TO INTRUCTION MWR OPTION: R * 16.2 P * 172.5 Y * 13.5 DPR: A/AUTO/VERN (18:32) Initiate MWR</p>		<p>FILE OUT HERE - BULL (Due Card)</p>		
<p>START TRACKER SELECT (ORBIT OPS C/L, GNC) INITIAL ALIGNMENT - S TRC (ORBIT OPS C/L, GNC) STAR ID: -Y: 15, HADAR -Z: 43, RASALHAGUE ANG DIF: 84.1 CERTIFY PRESENT FREE ORBIT, OPS 2 (FTD 477-02) (ORBIT OPS C/L, GCS) (18:57) Perform step 1: (AUTO MWR TO ATTITUDE) VERN Jets: ATT ID: Per TPR message</p>		<p>ENTER DECK/EC (ORBIT OPS C/L, EPS) Config B</p>		
<p>PCS 1(2) ON-ORBIT ACT/RECONFIG (ORBIT OPS C/L, ELS) Reconfig for SYS 2</p>		<p>Stars 15 & 43 available from 0/18:39 to 0/19:15</p>		
<p>START TRACKER SELECT (ORBIT OPS C/L, GNC) INITIAL ALIGNMENT - S TRC (ORBIT OPS C/L, GNC) STAR ID: -Y: 15, HADAR -Z: 43, RASALHAGUE ANG DIF: 84.1 CERTIFY PRESENT FREE ORBIT, OPS 2 (FTD 477-02) (ORBIT OPS C/L, GCS) (18:57) Perform step 1: (AUTO MWR TO ATTITUDE) VERN Jets: ATT ID: Per TPR message</p>		<p>INSTR. CREW TX ID 1, RNC ERR 2, 3 X () () () Y () () () Z () () () EXECUTION TIME: / /</p>		





NOTES

MCC

HI PRIORITY MSN
PLT
CDR

MET
DAY001
00:00

RT4 (B1)
HVN
VERN
CC
CONF

00:10

00:20

00:30

00:40

00:50

01:00

SCSI STIM

VTSS

BTDX

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BIN 6 CONT OR FLUSH OR END

(Que Card)

Operator Cell (Approx. 00:15)

✓Display - RM X CONT OK

FLUSH OR END

Operator Cell (Approx. 00:22)

✓Display - PHOTO

MEAL

MEAL

MEAL

5-19

5/11/82 SIS/AIN

SGLS STON

MET DAY001
02:00
A14 (B1)
MRN VERN CC CONFIG

R C N R C N T I B O T Y A R G M H S

HIS

CDR HI PRIORITY MSN PLT MCC NOTES

ACIP QUIESCENT ON ORBIT DATA (FSO 5433-02)

ON MET DIE (ACH) DFI RCOR3 HB NSM - CONT RCD Halt 30 sec

DFI RCOR3 HB NSM - STBY ON MET DIE

DEX PAR - OFF DFI HB NSM PHR - OFF

INDEMN CREW DFI HB-CONT RCD CMD DEX RCOR OFF INDEMN CREW PHR OFF RCDRS

MLR DEACTIVATION (Decal) (FSD 442-01)

Record Time:

RUN 7 CONT OR FLUSH OR END PART II (Due Card) (FSO 5436-01) Operator Call (Approx. 02:16) Display - RUN 7 CONT OR FLUSH OR END

RUN 7 CONT OR FLUSH OR END - PART III (Due Card) (FSO 5436-01) Operator Call (Approx. 02:31) Display - CLOSEOUT PROC

DUAL C2 OPS OPS (ORBIT OPS C/L, DPS)

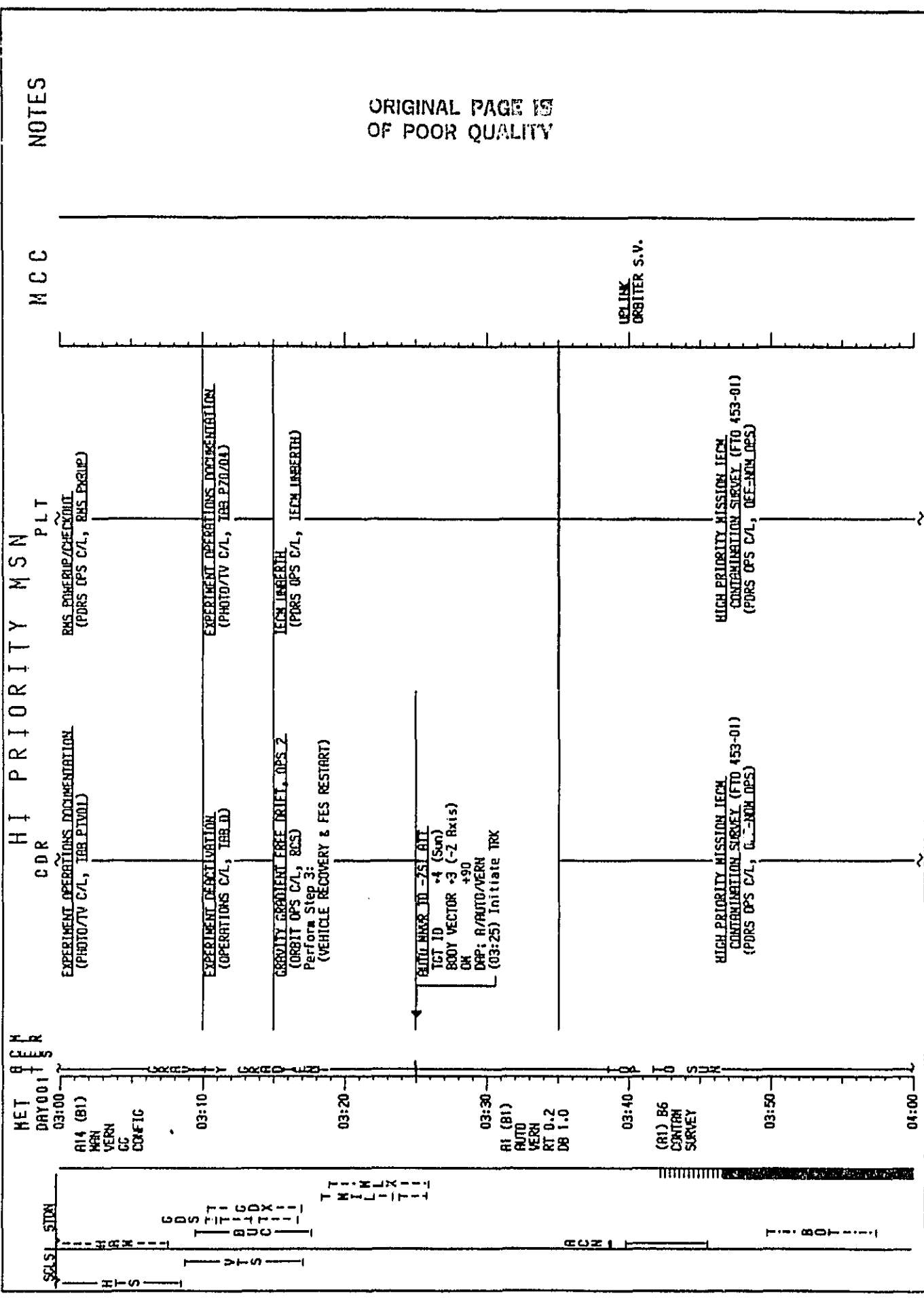
RMS RMEROP/CHECKOUT (PORS OPS C/L, RMS PHRIE)

TBR BLOCK DATA WEATHER PRO 8- 5/20-23

ASCENDING NODE ORB: 19 MET: 001-02:47:21 LON: 142.0 E

EXPERIMENT OPERATIONS DOCUMENTATION (PHOTO-TV C/L, TBR PT'II) Record 15 min

5-21 5/1782 STA/FIR



RET
DAY 001
05:00

SCSI STDN

CDR

HI PRIORITY MSN

CDR

PLT

MCC

NOTES

ORIGINAL PAGE 10
OF POOR QUALITY

TECH PLUME SURVEY
(FTD 454-01)
(PORS OPS C/L, PLUME SURVEY)

TECH PLUME SURVEY
(FTD 454-01)
(PORS OPS C/L, PLUME SURVEY)

DRG 21

05:50
(R1) B2
AUTO
VERN
RT 0.2
DR 0.1

ASCENDING NODE
DRG: 21
MET: 001:05:48:18
LON: 96.7 E

TECH BERTH
(PORS OPS C/L, TECH BERTH)

5-24

5711782 STS/FTN

HI PRIORITY MSN

NOTES

MCC

PLT

CDR

LECH BERTH
(PORS OPS C/L, LECH BERTH)

LECH BERTH
HZO SPLY DUMP
QTY TX R & B

BMS PROBATION
(PORS OPS C/L, BMS PROBATION)

RECH PREP (Que Card)
Prepare DAY 2, HEAL C

BUTO HNR TO INITIAL RIL
HNR OPTION: R - 241.7
P - 307.6
Y - 353.1
DAP: A/AUTO/VERN
(06:40) Initiate HNR

INITIAL RIL - S TRK
(ORBIT OPS C/L, CMC)
STAR ID: -Y: 42, ALPHACOR
-Z: 15, HADNR
RNG DIF: 89.1

BUTO HNR TO -ZSL RIL (FTD 412-01)
HNR OPTION: R - 309.1
P - 234.6
Y - 59.4
DAP: B/AUTO/VERN
(06:55) Initiate HNR

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLIS)
Dump TXS R & B
Dump to: QTY R = QTY B =

ORIGINAL PAGE 10
OF POOR QUALITY

Stars 42 & 15
available from
1/06:34 to 1/07:20

INITIAL RIL PBD

TRK ID	1	RNG	ERR	3
A X	()	()	()	()
A Y	()	()	()	()
A Z	()	()	()	()
EXECUTION TIME	---	---	---	---

5/14/82 STS46IN

MET		CDR		HI PRIORITY MSN		PLT		MCC		NOTES	
MET DAY001 (R1) 82 AUTO VERN RT 0.2 DB 0.1				REPORT: IMU ALIGN RESULTS						RPT: IMU ALIGN RESULTS	
07:00 07:10 07:20 07:30 07:40 07:50 08:00				07:00 07:10 07:20 07:30 07:40 07:50 08:00						ASCENDING NODE ORB: 22 MET: 001:07:18:47 LON: 72.5 E	
07:00 07:10 07:20 07:30 07:40 07:50 08:00				07:00 07:10 07:20 07:30 07:40 07:50 08:00						ORIGINAL PAGE IS OF POOR QUALITY	
07:00 07:10 07:20 07:30 07:40 07:50 08:00				07:00 07:10 07:20 07:30 07:40 07:50 08:00						UPLINK ORBITER S.V. TPR BLOCK DATA WEATHER PRO 8- 6/24-27	

5/14/82 51547RIN

5-26

NET 8:00
DAY 001
(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

SOLSI SIDN

HI PRIORITY MSN
CDR PLT

ECS HOT FIRE TEST
(ORBIT OPS C/L, RCS)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IIR PL002)

PRE-FLIGHT TEST
(FTD 477-01)
(ORBIT OPS C/L, GNC.FTDs)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IIR PL002)

SINGLE C2 PRE OPS
(ORBIT OPS C/L, OPS)

EDEL CELL PIECE - RUM (Coe Card)

CID RESINBER REPLACEMENT
(4 into B)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, GREN SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, GREN SYS)

ORB 23

ASCENDING NODE
ORB: 23
MET: 01:08:49:15
LON: 49.4 E

NOTES

MCC

MCC ONLY
COORD C/L/FDR
LIMITS CLEARUP
FOR DREN SLEEP

DELINK
SPC LOGO -
1ST COM
ALERT
CMO
RDR SLEEP
CONFIC

ORIGINAL PL 111
OF FOUR QUALITY

514782557M

5-28

۷۷۵

HI PRIORITY MSN
CDR ~
PDE SLEEP ACTIVITY
(ORBIT OPS CAL, CENM SYS)
PLT ~
PDE SLEEP ACTIVITY
(ORBIT OPS CAL, CENM SYS)

NET 13H
DAYO, 1
PERS
KLR

DAY 00
09:00 -
(R1) BZ
AUTO
VERN
RT 0.2
DB 0.1

SCS 1575

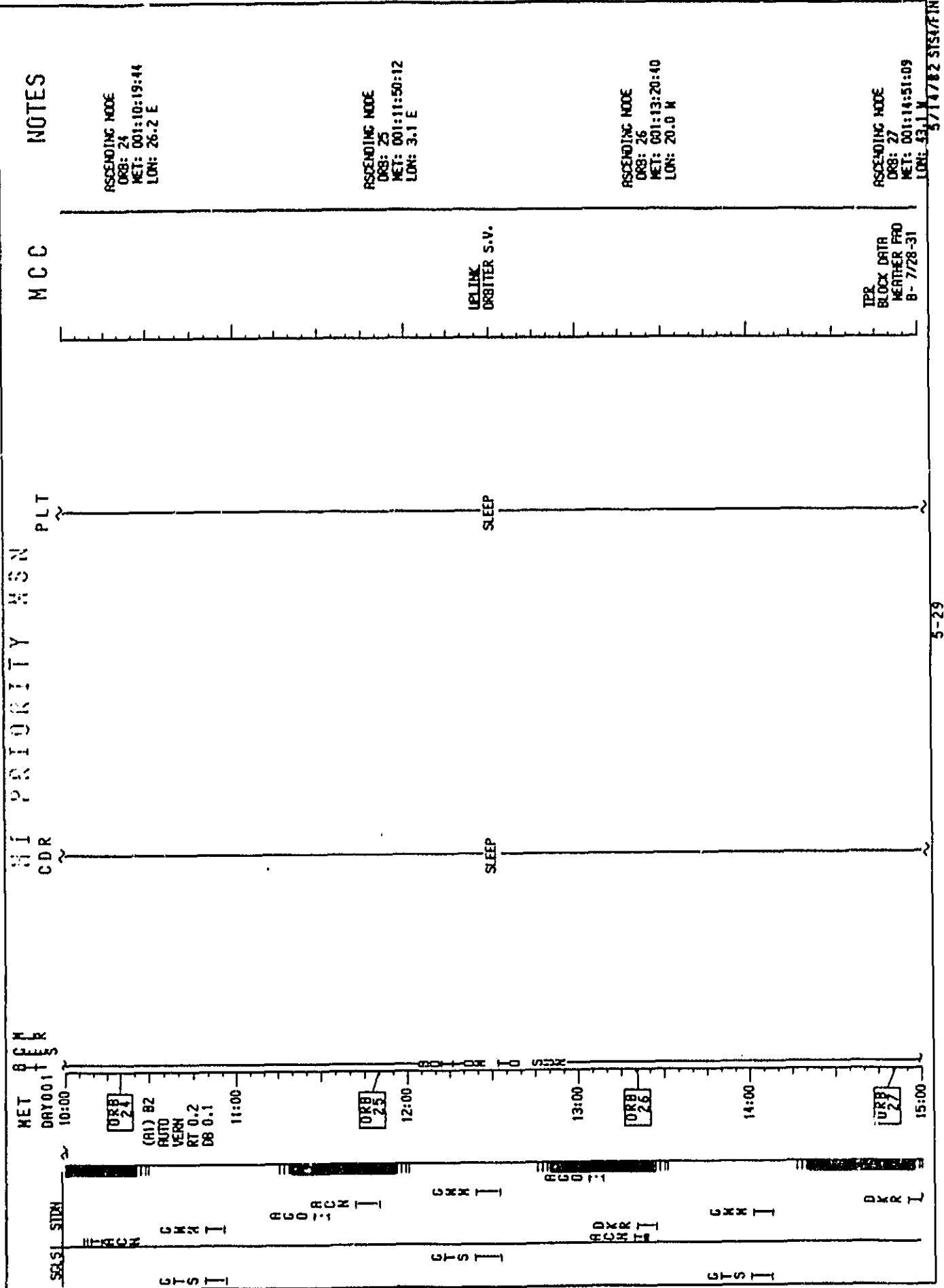
1-5-1

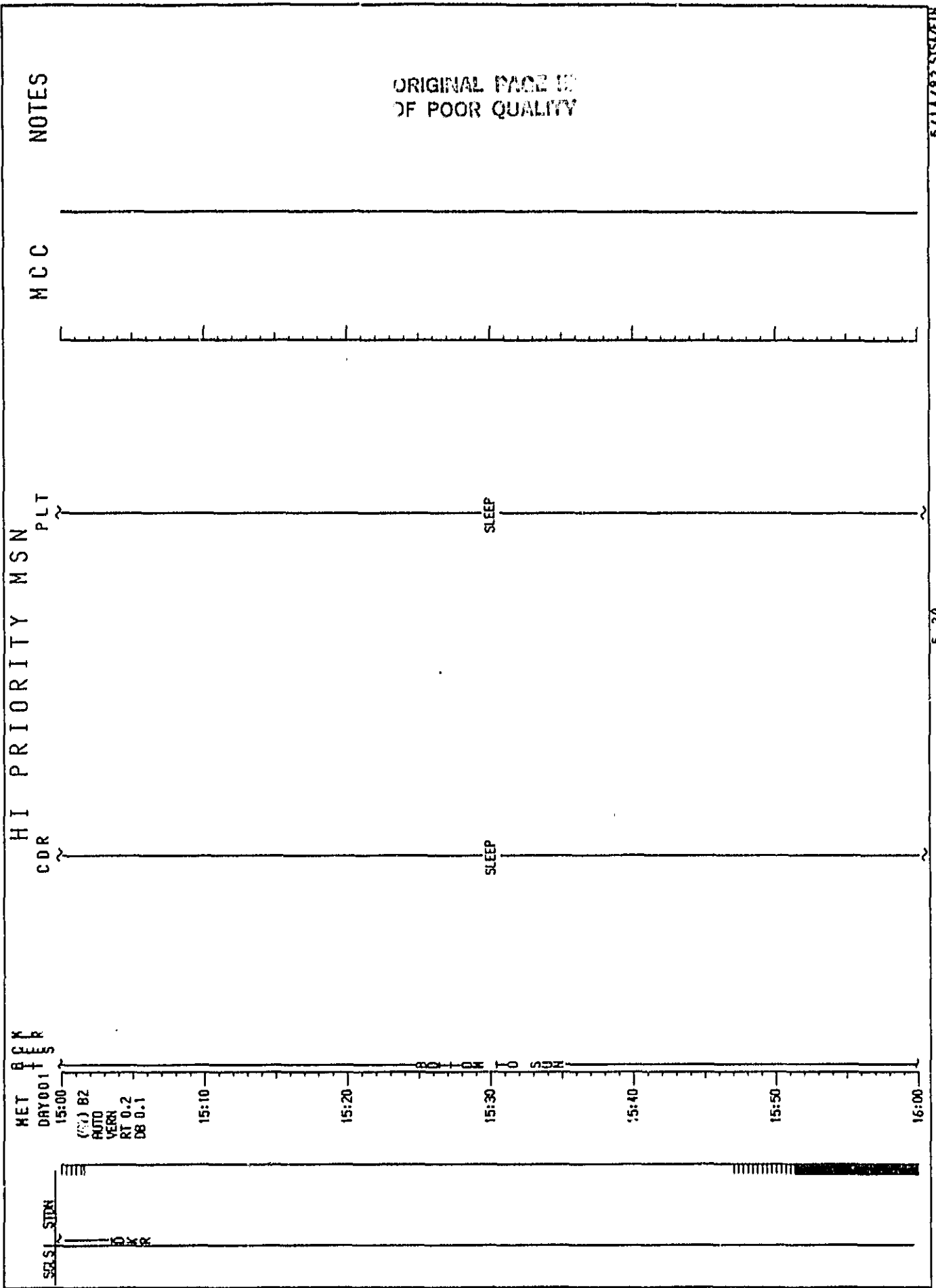
— 10 —

SLEEP

sleep

†...ඇමුණ...†





5/11/82 SIS/ER

5-30

KEY
DAY 001

SELSI STON

(RI) B2
AUTO
VERA
RT 0.2
DB 0.1

ORBIT 28

801 ON TO SUN

HI PRIORITY MSN

CDR

PLT

SLEEP

SLEEP

MCC

NOTES

ASCENDING NODE
ORB: 28
MET: 001:16:21:37
LON: 66.3 W

ORIGINAL
OF POOR QUALITY

UPLINK
ORBITER S.V.
CNO
ACOR FRAME
CONFIC
UPLINK
SPC LORO -
CLEAR DOWN
ALERT

NOTES

MCC

HI PRIORITY MSN
CDR PLT

HET
DRY001

SOLSI STDN

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

17:10

17:20

17:30

17:40

17:50

18:00

ORP 29

SLEEP

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

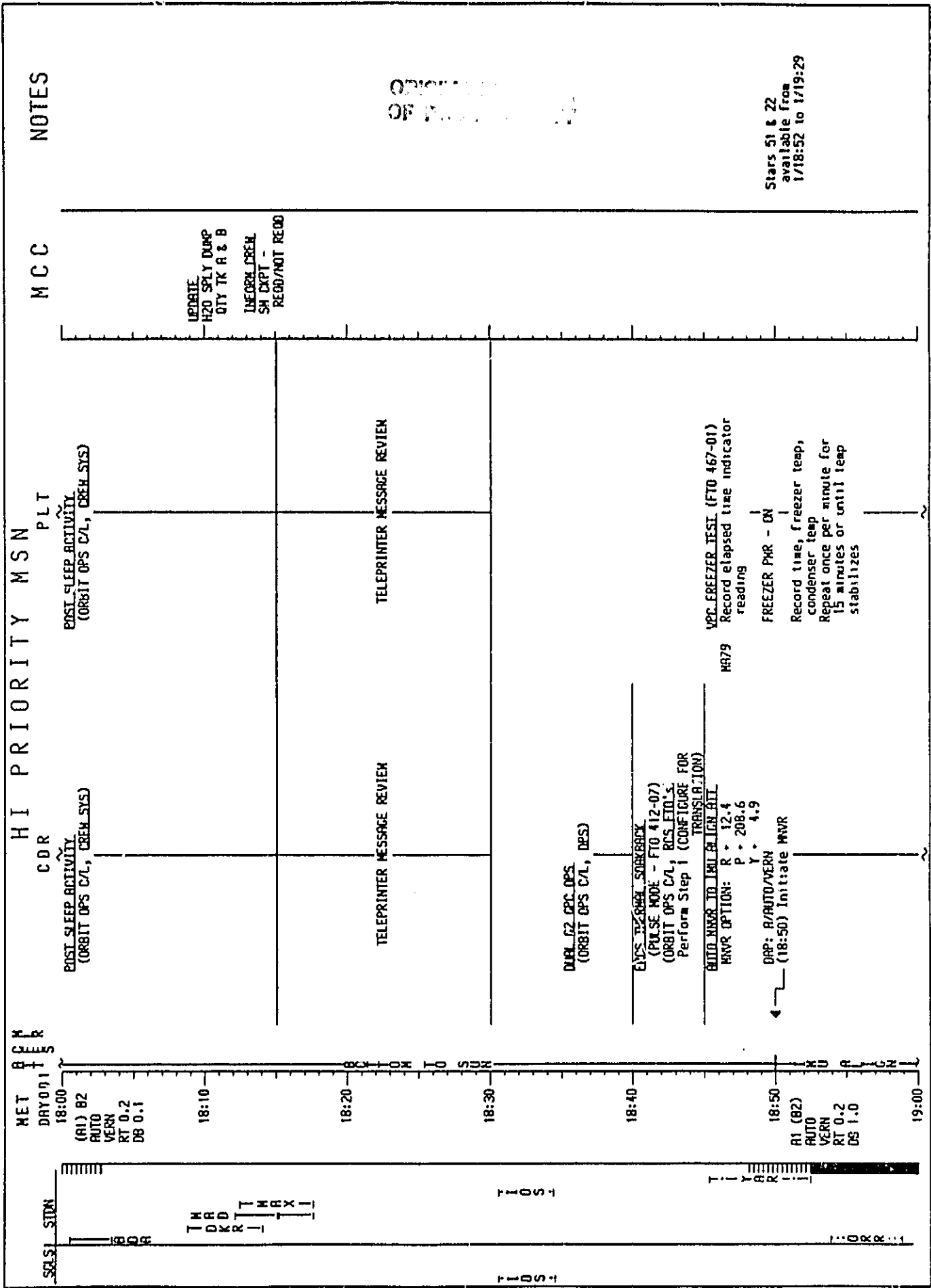
POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 29
MET: 001:17:52:05
LOH: 88.4 N

5/14/82 SYS: FTR

5-32



SCSI STN

MET DAY 001

19:00

19:10

19:20

19:30

19:40

19:50

20:00

HI PRIORITY MSN

CDR ~ PLT

PLT

PLT

MCC

NOTES

STAR TESTER SET-TEST
(ORBIT OPS C/L, GNC)
IML ALIGNMENT - S TRK
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 51, ATRIA
-Z: 22, ALTAIR
RNC DIF: 34.0

AUTO MNR TO -ZSL ATT (FTO 412-01)
MNR OPTION: R * 309.1
P * 234.6
Y * 59.4
DPP: B/AUTO/VERN
(19:10) Initiate MNR

WPC FREEZER TEST (FTO 467-01)

WATER SAMPLE FREEZING
Unstow H2O sample container and fill with H2O
Insert container into freezer,
Record time / : :
Changeout wireless headset battery pack

EC PURGE - MEXIAL (Cue Card)

SUPPLY WATER DUNE
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =

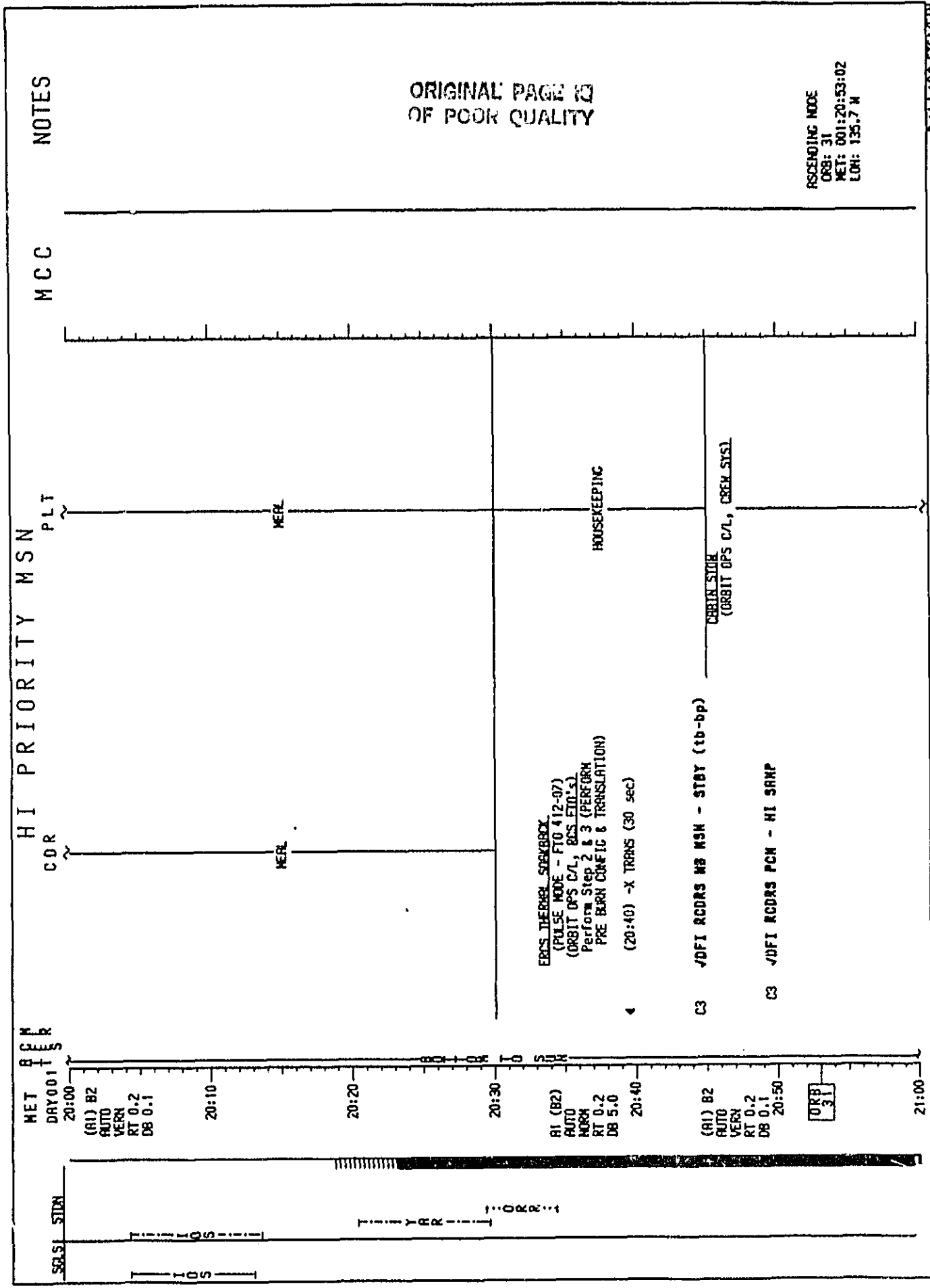
REPORT: IML ALIGN RESULTS

REPORT: IML ALIGN RESULTS

ASCENDING MODE
DRS: 30
NET: 001:19:22:33
LON: 112.6 N

RPT: IML ALIGN RESULTS

ORIGINAL PAGE 1 OF POOR QUALITY



ORIGINAL PAGE 13
OF POOR QUALITY

ASCENDING NODE
ORB: 31
MET: 001:20:53:02
LOH: 135.7 W

5/14/82 515571H

5-35

NOTES

ORIGINAL PAGE 10
OF POOR QUALITY

MCC

UPLINK
ORBITER S.V.
TP2
BLOCK DATA
WEATHER PRO
B- 8/32-35

PLT

CABIN STOW

HI PRIORITY MSN

CDR

ERCS THERMAL SINKBOX
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS FID 51)
Perform Step 3 (PERFORM TRANSLATION)

4 (21:10) -X TRANS (30 sec)

C3 ✓DFI RCORS NB MSN - STBY (tb-bp)

C3 ✓DFI RCORS PCM - HI SAMP

ERCS THERMAL SINKBOX
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS FID 51)
Perform Step 3 (PERFORM TRANSLATION)

4 (21:40) -X TRANS (30 sec)

C3 ✓DFI RCORS NB MSN - STBY (tb-bp)

C3 ✓DFI RCORS PCM - HI SAMP

HET

DAY 001

21:00

A1 (B2)
AUTO
NORX
RT 0.2
DB 5.0

21:10

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

21:20

001 PM TO SUN

21:30

A1 (B2)
AUTO
NORX
RT 0.2
DB 5.0

21:40

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

21:50

22:00

5/14/82 SISV/FIN

5-36

NET
DAY 001
22:00

PLT
CDR

HI PRIORITY MSN

CDR

CDR

NET
DAY 001
22:00

PLT
CDR

CDR

ERCS THERMAL SUBROCK
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS FID-5)
Perform Step 3 (PERFORM TRANSLATION)

4 (22:10) -X TRANS (30 sec)

C3 JDFI RCORS MB MSN - STBY (tb-bp)

C3 JDFI RCORS PCN - HI SAMP

ORR
32

ERCS THERMAL SUBROCK
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS FID-5)
Perform Step 3 & 4 (PERFORM
TRANSLATION & POST BURN RECONFIC)

4 (22:40) -X TRANS (30 sec)

C3 JDFI RCORS MB MSN - STBY (tb-bp)

C3 JDFI RCORS PCN - HI SAMP

DEL POWER LP (MIL)
R11:H DFI PCN CONT 1,2,3 SCSC (three) - ON

DEL POWER DDMAL
R11:H DFI PCN CONT 1,2,3 SCSC (three) - OFF

ASCENDING NODE
DOB: 32
MET: 001:22:23:30
LDN: 158.9 H

ORIGINAL PAGE
OF POOR QUALITY

MET
DAY 001

HI PRIORITY MSN
CDR PLT

NOTES

MCC

(R1) B2
AUTO
VERN
RT 0.2
DS 0.1

CBS DEACTIVATION PREP (Due Card)
(FSO S435-01)

MEAL PREP (Due Card)
Prepare DAY 3, MEAL B

CBS IN STIM
(ORBIT OPS C/L, CREW SYS)

REGULATORS STOP/DELAY
(FTD 466-01)
(ORBIT OPS C/L, ELBO FTD's)
Perform Step 1 - STOP REGULATORS

AUTO REAR TO TECH OPS RELEASE

TGT ID + 2
BODY VECTOR + 5
P + 0
Y + 270
OR + 90
DAP: #AUTO/VERN
(23:40) Initiate TRK

TECH OPS RELEASE (FSO S431-01)

Change DAP A:
ROT DISC RATE VERN - .007"/sec
DB ATT VERN - 0.5"
DAP: #AUTO/VERN

HOUSEKEEPING

0000
33

ASCENDING NODE
ORB: 33
MET: 001:23:53:58
LON: 177.5 E

ORIGINAL PAGE 1
OF POOR QUALITY

MI 571515 ZR/P 1/5

NOTES

CCM

HI PRIORITY MSN
CDR PLT

NET 13H
DAY002
SMT 1
KLR

	IECH GAS RELEASE (FSO S431-01)
	[GNC ONLY ETC]
	BODY VECT *2 (-X Axis)
R11	(00:07) Initiate ROT
	IECH - FOS 1, Wait 30 sec
	IECH - POS 2

R11

1

— 53 —

01:00

NET OPER
DAY 002

03:00
(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

03:10

03:20

03:30

03:40

03:50
A1 (B2)
AUTO
NORH
RT 0.2
DB 5.6

04:00

HI PRIORITY MSN
CDR PLT

PLSD PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)

PLSD PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)

REAL PREP (Coe Card)
Prepare DAY 3, NEAL C

(CNC 23 RCS)
JET DES FZF - ITEM 23 EXEC (no *)
PRIMARY RJD DRIVER (eight) - DN
EACS THERMAL SINKBACK (FTO 412-06)
(DRBIT OPS C/L, RLS FTO 5)
Perform Step 2 (PERFORM TRANSLATIONS)
Unit THC +X move
(03:50) -X TRANS (30 sec)

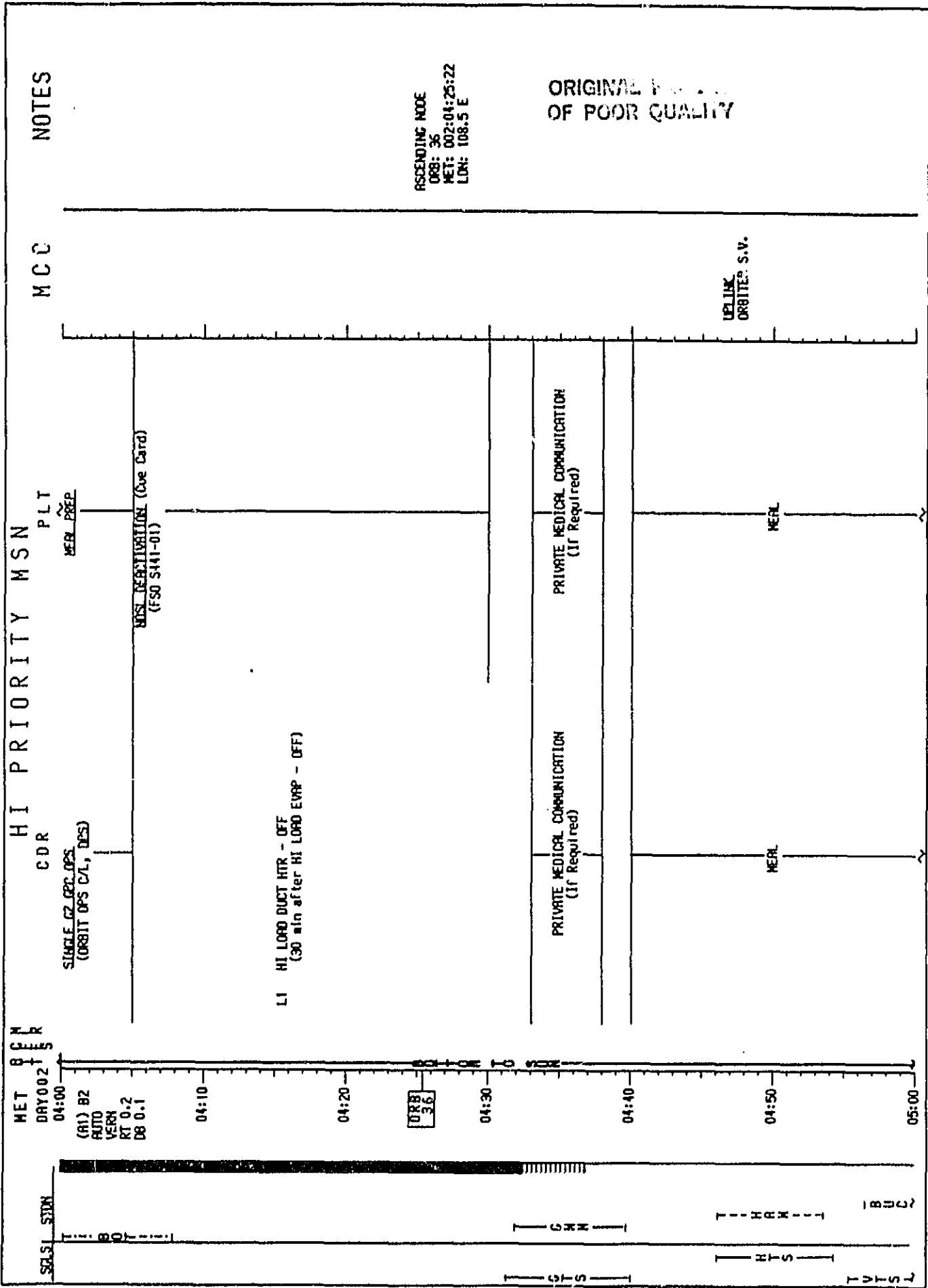
C3 /DFT RCORS MB MSN - STBY (tb-bp)

GAP: B/AUTO/VERN
PRIMARY RJD DRIVER (eight) - OFF
C3 /DFT RCORS PCN - HI SRNP

NOTES

MCC

ORIGINAL PAGE IS
OF POOR QUALITY



5/14/82 STS071R

MET 0000
DRY002

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

SELS STON
VTS

HI PRIORITY MSN

CDR

PLT

MCC

NOTES

ORIGINAL PAGE 10
OF POOR QUALITY

MEPL

MEPL

CRAIN STON
(ORBIT OPS C/L, CREW SYS)

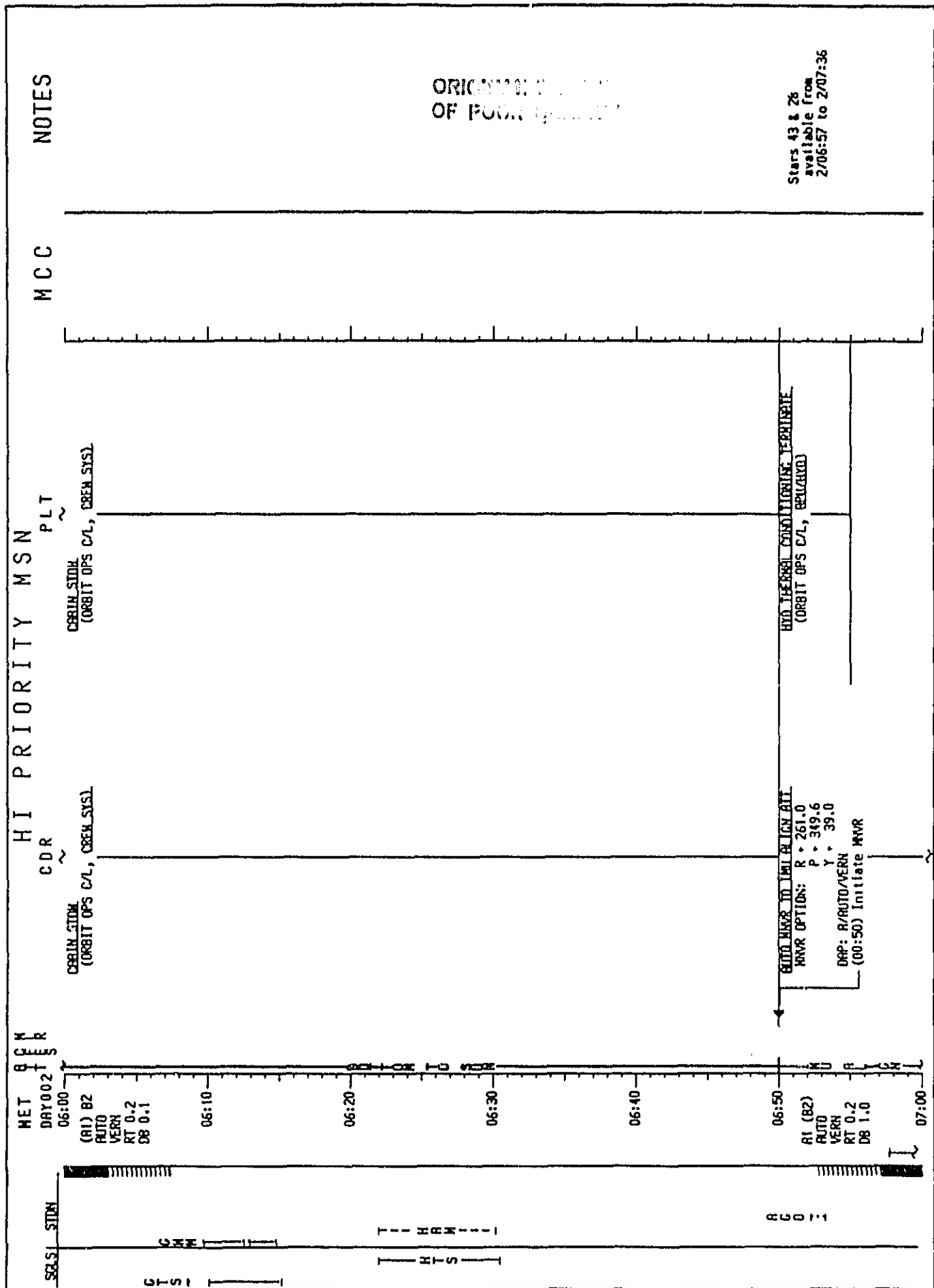
CRAIN STON
(ORBIT OPS C/L, CREW SYS)

ORB
37

ASCENDING NODE
DPS: 37
MET: 002:05:55:50
LON: 85.3 E

5-11

5/14/82 SIS4/FIN



NET 07:00
DAY 002

07:10
R1 (R2)
AUTO
VERN
RT 0.2
DB 1.0

07:20
R2 (R1)
AUTO
VERN
RT 0.4
DB 1.0

07:30
R3 (R0)
AUTO
VERN
RT 0.6
DB 1.0

07:40
R4 (R3)
AUTO
VERN
RT 0.8
DB 1.0

07:50
R5 (R4)
AUTO
VERN
RT 1.0
DB 1.0

08:00
R6 (R5)
AUTO
VERN
RT 1.2
DB 1.0

HI PRIORITY MSN

CDR ~

PLT

07:00
R1 (R2)
AUTO
VERN
RT 0.2
DB 1.0

07:10
R2 (R1)
AUTO
VERN
RT 0.4
DB 1.0

07:20
R3 (R0)
AUTO
VERN
RT 0.6
DB 1.0

07:30
R4 (R3)
AUTO
VERN
RT 0.8
DB 1.0

07:40
R5 (R4)
AUTO
VERN
RT 1.0
DB 1.0

07:50
R6 (R5)
AUTO
VERN
RT 1.2
DB 1.0

08:00
R7 (R6)
AUTO
VERN
RT 1.4
DB 1.0

IMU ALIGNMENT - 5 TX
 (ORBIT OPS C/L, GNC)
 STAR ID: -Y: 43, RASALHAGUE
 -Z: 28, AL NA'IR
 RNC DIF: 85.0
 REPORT: IMU ALIGN RESULTS
 0.4 DELTA SEC. PTC. XPR - INITIATE
 (FTO 412-01)
 MNR OPTION: R= 165.8
 P= 232.6
 Y= 58.3
 DDP: R/AUTO/VERN
 (07:10) Initiate MNR

When MNR to PTC ATT complete,
 CHANGE DDP A:
 ROT DISC RATE VERN - 0.4 °/SEC
 CHANGE DDP B:
 DB ATT VERN - 1.0°
 BODY VECT *4
 (07:30) Initiate ROT

PERFORM THE ORBIT SURVEY (FTO 412-06)
 (ORBIT OPS C/L, RCS FTO's)
 Perform Step 3 (RECONFIG TO NOMINAL)

SUPPLY WATER DUMP
 (ORBIT OPS C/L, ECLS)
 Dump TKS A & B
 Dump to:
 CITY A = _____ CITY B = _____
 ELEC CELL PURGE - AUTO (Cue Card)

CABIN TV STOW
 MF57E/ Stow both cameras
 MF57C

PHILODOR DECONTAMINATION
 (OPERATIONS C/L, TBR E)

GAS DECONTAMINATION (Cue Card)
 (FSO S135-01)

SHED GAS EXHAUST (Cue Card)

POST OPERATIONS DOCUMENTATION
 (OPERATIONS C/L, TBR P20/14 & P20/15)

PHILODOR DECONTAMINATION
 (OPERATIONS C/L, TBR E)

IMU ALIGN PHO

TRX ID	1	2	3
AX	()	()	()
AY	()	()	()
AZ	()	()	()

EXECUTION TIME: _____

RT: IMU ALIGN RESULTS

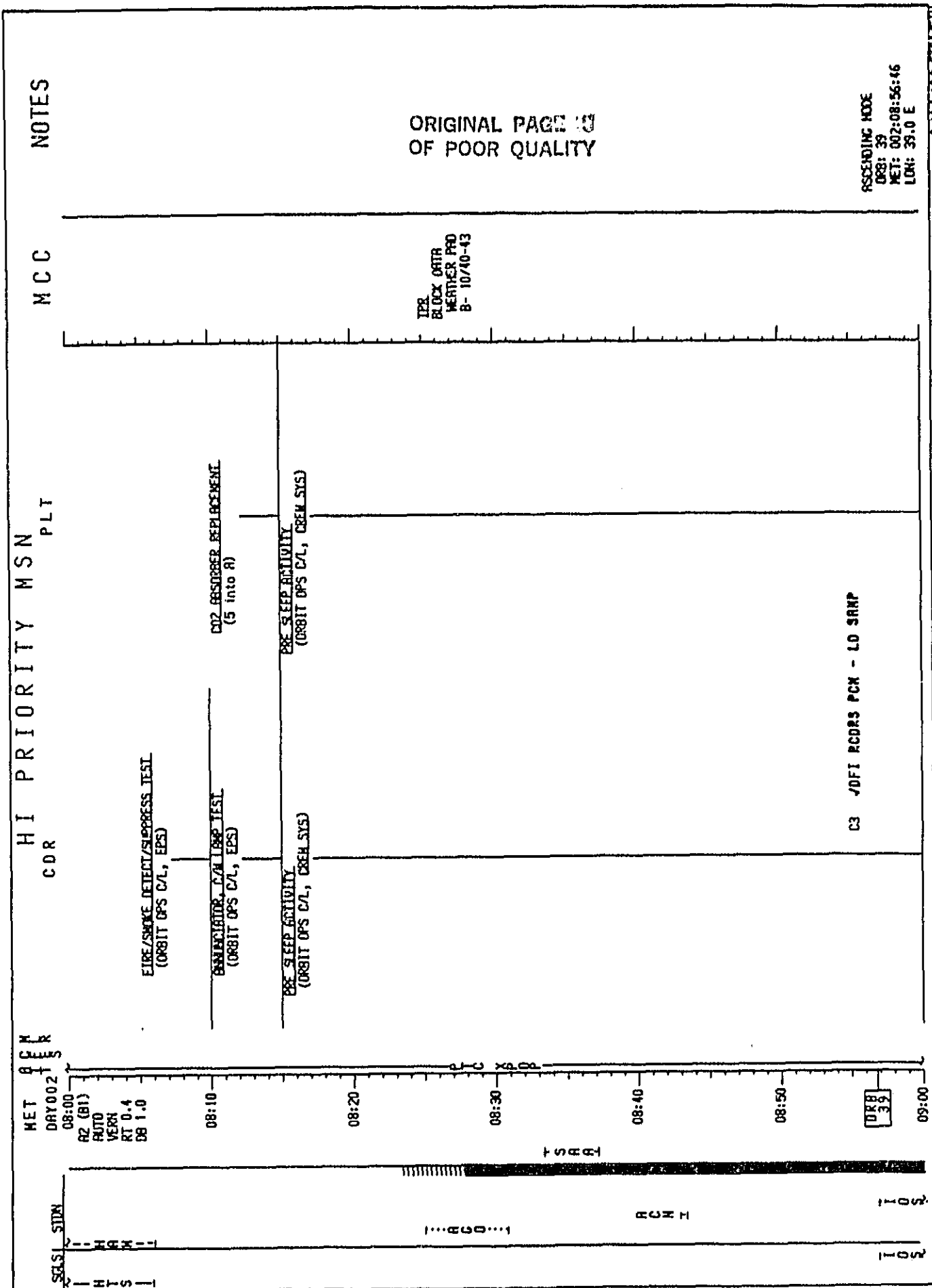
LEGATE
H2O SPY DUMP
QTY TX A & B

ASCENDING NODE
ORB: 38
MET: 002:07:26:18
LON: 62.2 E

ORIGINAL PAGE 10
OF POOR QUALITY

NOT ONLY
COORD CSM/DBA
LIMITS CLEANUP
FOR ORER
SLEEP

UPLINK
SPC LOAD -
1ST COMM
ALERT
CND
RDR SLEEP
CONFIC



HET
DAY 002

BCR

CDR

HI PRIORITY MSN

PLT

NOTES

MCC

ORIGINAL PAGE IS
OF POOR QUALITY

UPLINK
ORBITER S.V.

SLEEP

SLEEP

5/14/82 SISOTIR

5-48

AZ (B1)
AUTO
VERN
RT 0.4
DB 1.0

09:10

09:20

09:30

09:40

09:50

10:00

STON

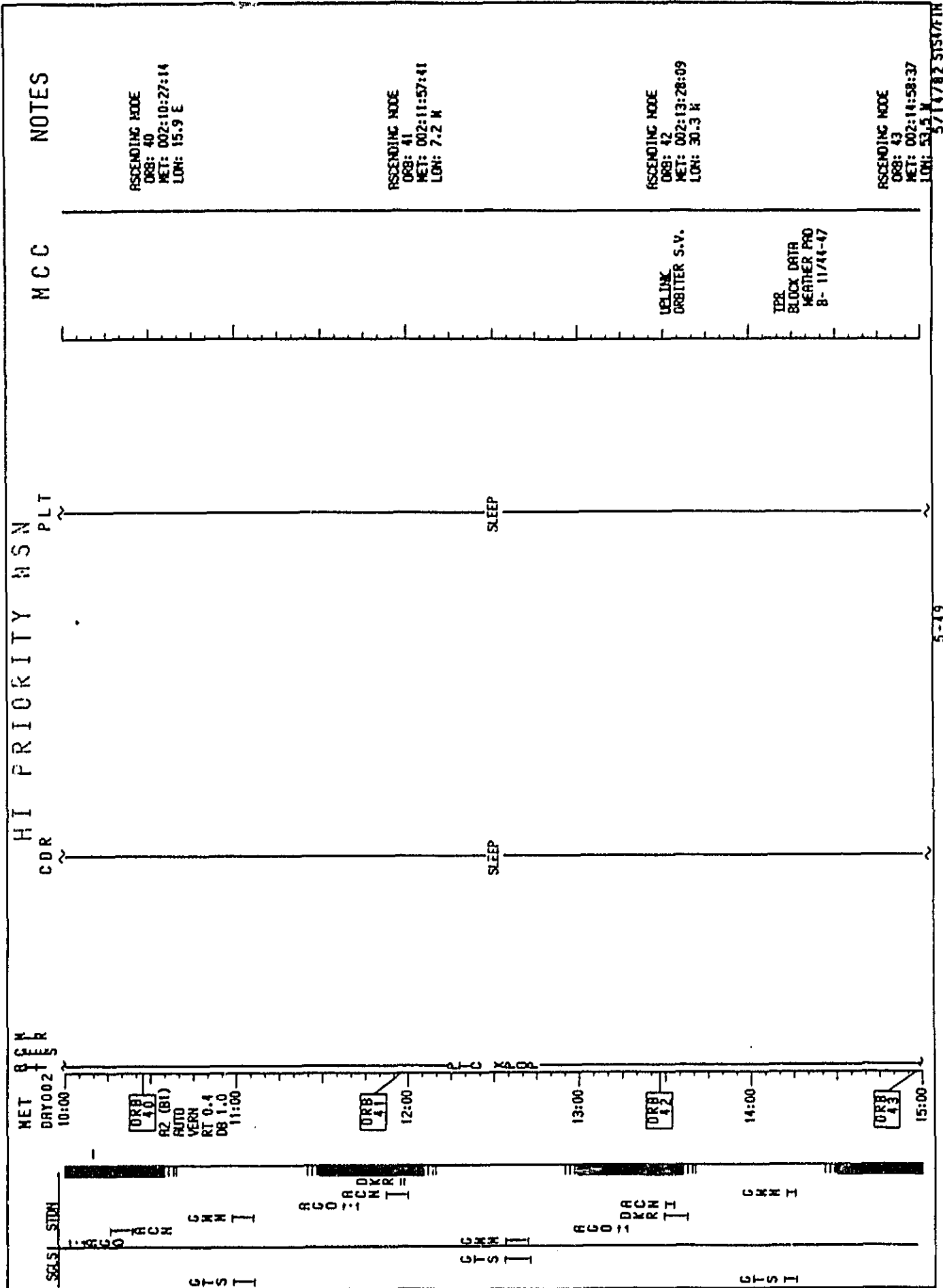
10 S

GNH 1 1 1

1 1 1 1 1

HRN 1 1 1

1 1 1 1 1



NOTES

MCC

HI PRIORITY MSN
PLT
CDR

NET
DRY002
15:00

82 (81)
AUTO
VERN
RT 0.4
DB 1.0

OK R
H A D I

ORIGINAL PAGE 13
OF PCOR QUALITY

SLEEP

SLEEP

5/11/82 SIS/TH

5-50

NET 0 CDR
DRY002

16:00
R2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

SEALS STD

HI PRIORITY MSN
CDR

PLT

MCC

NOTES

ASCENDING NODE
ORB: 44
MET: 002:16:28:04
LON: 76.6 N

ORIGINAL PAGE 10
OF POOR QUALITY

END
RCOR RAKE
CONFIC
UPLINK
SPC LORO-
CLER COM
ALERT

SLEEP

SLEEP

ORB
44

16:30

16:40

16:50

17:00

MAX
T
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A
X
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H
A
X
I
T
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A
X
I

NOTES

MCC

HI PRIORITY MSN
PLT
CDR

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

UPDATE
H2O SPLY DUMP
QTY TX R & B
INFORM DEER
SK CKPT -
REQD/NOT REQD

ORIGINAL PAGE 19
OF POOR QUALITY

RECEIVING MODE
088: 45
MET: 002:17:59:32
LUN: 59.8 N
5714782 SIS4/FIR

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

5-52

NET 0000
DAY 002

HI PRIORITY MSN

PLT

CDR

MEAL

MEAL

19:30
ORB 46

ASCENDING NODE
ORB: 46
MET: 002:19:30:00
LON: 122.9 W

TPR
BLOCK DATA
HEATHER PRO
8-12/48-51

LEADIE
CRT TIMER
SETUP PRO

CLEANUP/STORAGE (Cue Card)
Steps 1-4

R11 OEX PAR - ON

Copy: CRT TIMER SETUP PRO UPDATE
in ORBIT PREP, 3-7

[Go to DEORBIT PREP]

NOTES

ORIGINAL PAGE 13
OF POOR QUALITY

MCC

ONE-DAY EXTENSION

The STS-4 Extension Timeline is designed to follow a nominal flight up to the decision point for the 24 hour extension. This GO/NO GO decision point occurs at MET 6/00:25, prior to any mission-related activities for the nominal flight.

Also, this timeline may be used after the D/O PREP BACKOUT has been executed on FD 8.

24 HOUR EXTENSION CASE:

- o Execute detailed timeline pages from 6/00:00 to Deorbit Prep on FD 9
- o A period of time with no scheduled activities is provided immediately following the GO/NO GO to allow preparations for the extension of the flight.

AFTER DEORBIT PREP BACKOUT CASE:

Begin timeline at 7/00:30 with the following changes:

- o CDR - MCC will modify PTC to -ZLV as required (5-83); omit CABIN TV STOW at 7/04:15 MET
- o PLT - Omit all activities between MET 7/02:10 and 7/04:20 (i.e., P/L DEACT, CABIN STOW, CO₂ ABSORBER REPLACEMENT)

ONE-DAY EXTENSION

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
184:15:00/ 185:03:00/ 006:00:00/ 006:12:00/ 184:10:00/ 184:22:00		184:15:00/ 184:22:00		184:10:00/ 184:22:00		7/184 DOY		16.9		0		JULY 3, 1982		STS-4		FINAL		05/14/82	
GMT : 184 15		16		17		18		19		20		21		22		23		24	
FD 7		1		2		3		4		5		6		7		8		9	
MET : 006 0		1		2		3		4		5		6		7		8		9	
CDR		MERL		MERL		MERL		MERL		MERL		MERL		MERL		MERL		MERL	
PLT		MERL		MERL		MERL		MERL		MERL		MERL		MERL		MERL		MERL	
DAY/NIGHT		96		97		98		99		100		101		102		103		104	
ORBIT		96		97		98		99		100		101		102		103		104	
EARTH TRACE		96		97		98		99		100		101		102		103		104	
M/SAR		96		97		98		99		100		101		102		103		104	
CSTDN COVERAGE		96		97		98		99		100		101		102		103		104	
SGLS COVERAGE		96		97		98		99		100		101		102		103		104	
QPS		96		97		98		99		100		101		102		103		104	
DEGRB KSC		96		97		98		99		100		101		102		103		104	
EDK		96		97		98		99		100		101		102		103		104	
ATTITUDE		96		97		98		99		100		101		102		103		104	
MANEUVERS		96		97		98		99		100		101		102		103		104	
TV/VIR		96		97		98		99		100		101		102		103		104	
CFES		96		97		98		99		100		101		102		103		104	
MLR		96		97		98		99		100		101		102		103		104	
NOTES:		96		97		98		99		100		101		102		103		104	

ORIGINAL PAGE 1
OF POOR QUALITY

* FT0 412-01 ATT HOLD THERMAL RESPONSE
* FT0 412-06,08 RCS THERMAL SORABOX, TWO TWO ONE L PROCS ENGINE

* FT0 8 CO/NO GO

05/14/82 515071N

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BEAT		MOON		FLIGHT		EDITION		PUB. DATE	
185:03:00/ 185:15:00		006:12:00/ 007:00:00		184:22:00/ 185:10:00		7/ 184 CDT		18.8		JULY 4, 1982		STS-4		FINAL		05/14/82	
GMT : 185 3		FD 7		13		14		15		16		17		18		19	
MET : 006 12		FD 8		15		16		17		18		19		20		21	
COR		SLEEP		POST SLEEP ACT		MEAL		PLBO CYCLE TEST		MEAL		MEAL		EQUIP PREP		EVA PREP	
PLT		SLEEP		POST SLEEP ACT		MEAL		PLBO CYCLE TEST		MEAL		MEAL		EQUIP PREP		EVA PREP	
DAY/NIGHT		104		105		106		107		108		109		110		111	
ORBIT		104		105		106		107		108		109		110		111	
EARTH TRACE		104		105		106		107		108		109		110		111	
M/SAR		104		105		106		107		108		109		110		111	
CSTDN COVERAGE		104		105		106		107		108		109		110		111	
SGLS COVERAGE		104		105		106		107		108		109		110		111	
OPS DEORB KSC EDN		104		105		106		107		108		109		110		111	
ATTITUDE		104		105		106		107		108		109		110		111	
MANEUVERS		104		105		106		107		108		109		110		111	
TV/VR		104		105		106		107		108		109		110		111	
CPES		104		105		106		107		108		109		110		111	
MLR		104		105		106		107		108		109		110		111	
NOTES:		104		105		106		107		108		109		110		111	

[illegible]

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
186:03:00/ 186:15:00		007:12:00/ 008:00:00		185:22:00/ 186:10:00		8/ 185 DOY		22.7		0		JULY 5, 1982		STS-4		FINAL		05/14/82	
TIC																			
GMT : 186 3		FD 9		6		7		8		9		10		11		12		13	
FD 8		13		5		14		15		16		17		18		19		20	
MET : 007 12				-6		-5		-4		-3		-2		-1		0		1	
CDR		SLEEP		POST SLEEP TRK NSC/IMU REVIEW		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP	
PLT		SLEEP		POST SLEEP TRK NSC/IMU REVIEW		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP	
DAY/NIGHT		120		121		122		123		124		125		126		127		128	
ORBIT		120		121		122		123		124		125		126		127		128	
NON-UP/DOWN		120		121		122		123		124		125		126		127		128	
EARTH TRACE W/SRA		120		121		122		123		124		125		126		127		128	
CSTDM COVERAGE		120		121		122		123		124		125		126		127		128	
SGLS COVERAGE		120		121		122		123		124		125		126		127		128	
OPS		120		121		122		123		124		125		126		127		128	
DEDRB KSC EDH		120		121		122		123		124		125		126		127		128	
ATTITUDE		120		121		122		123		124		125		126		127		128	
MANEUVERS		120		121		122		123		124		125		126		127		128	
TV/VTR		120		121		122		123		124		125		126		127		128	
CFES		120		121		122		123		124		125		126		127		128	
MLR		120		121		122		123		124		125		126		127		128	
NOTES:																			

ORIGINAL PAGE IS
OF POOR QUALITY

05/14/82 515071K

5-59

☐ STRIKE SELF TEST ☐ ENTRY CONFIC ☐ NO SN LIST VER
☐ LAST MERL CLEARUP ☐ PLD CLOSING ☐ POST CLOSING

MET
DRY006

STS-4 DETAILED
CDR

PLT

NOTES

MCC

ASCENDING NODE
ORB: 97
MET: 006:00:24:04
LON: 135.6 E

INDECH.DSCH
FD 8 GO /NO GO

FD 8 GO/NO GO

ORIGINAL DATA
OF POOR QUALITY

5-60

05/14/82 SIS/IN

STS-4 DETAILED

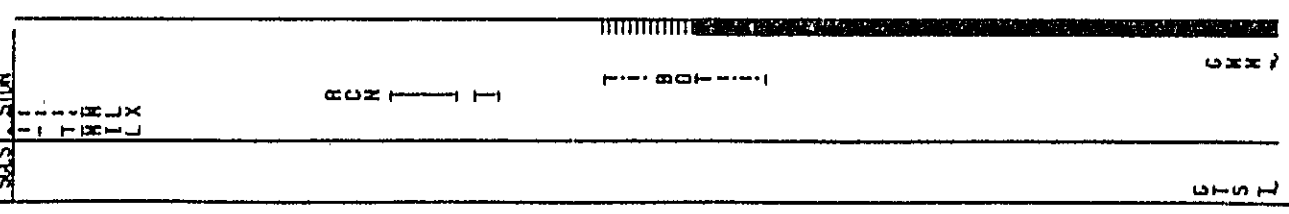
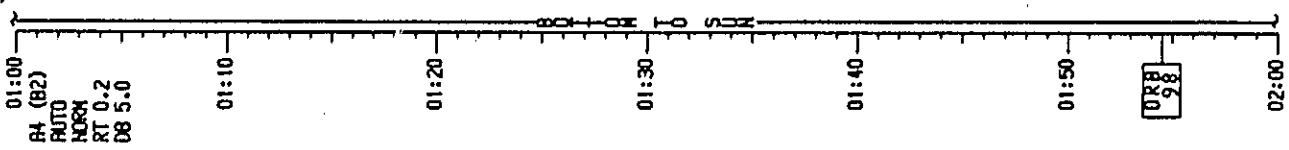
CDR

NOTES

MCC

PLT

MET
DRY006



STATION
ORBITAL

ASCENDING NODE
ORB: 98
MET: 006:01:54:32
LON: 113.5 E

NET
02:00
02:10
02:20
02:30
02:40
02:50
03:00

RA (B2)
AUTO
NORM
RT 0.2
DS 5.0

SESL. STDM

CM

T H R M

H T S

V T S

CG
TDS
BTT
UCL

NOT ON TMS

STS-4 DETAILED PLT
CDR

NOTES

MCC

TER
BLOCK DATA
WEATHER PRO
B-25/101-104

NEEL PREP (Que Card)
Prepare DAY 7, NEEL C

ORIGINAL FORM 11
OF POOR QUALITY

NOTES

THE
CHURCH

A4 (B2)
AUTO
NDRM
RT 0.2
D3 5.0

03:10

收: 2013

0000

U:EI

3.4.2

03-0

3.3

- 105 -

SECRET

— 54 —

1-1. 0001-1-1

10-1-205-1-1

USE —

11-222-1-1

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS R & B
Dump to:

QTY A

QTY B =

UPDATE
H2O SPLY DUMP
QTY TK A : B

ASCENDING NODE
ORB: 99
MET: 006:03:25:00
LON: 90.3 E

ORIGINAL FORM OF
OF POOR QUALITY

5-6

05/14/82 5357IN

NET B C M
DAY 006

SCS1 STN

04:00
RA (82)
AUTO
NORM
RT 0.2
DB 5.0

04:10

04:20

04:30

04:40

04:50

(R1) 82
AUTO
VERN
RT 0.2
DB 5.0

05:00

STS-4 DETAILED

CDR

PLT

MCC

NOTES

ORIGINAL PAGE 11
OF POOR QUALITY

ERS/ERS THERM SINKBOX
(2 FND/1 AFT RCS ENG - FTO 412-06.08)
(ORBIT OPS C/L, RCS FID's)
Perform Step 3 (RECONFIG TO NOMINAL)

BUILD MNR TO IMI ALIGN ATT

MNR OPTION: R + 261.0
P + 349.6
Y + 39.0

DAP: B/AUTO/VERN
(04:32) Initiate MNR

IMI ALIGNMENT - S BRC

(ORBIT OPS C/L, GNC)
STAR ID: -Y: 43, RASOLARQUE
-Z: 28, AL N4 TR
ANG DIF: 85.0

BUILD MNR TO -751 ATT (FTO 412-01)

MNR OPTION: R + 321.2
P + 224.0
Y + 51.4

DAP: B/AUTO/VERN
(04:52) Initiate MNR

Stars 28 & 43
available from
6/04:33 to 6/05:13

IMI ALIGN PREL

TRX ID	1	2	3
ANG	()	()	()
X	()	()	()
Y	()	()	()
Z	()	()	()

EXECUTION TIME: / /

ASCENDING MNR

DB: 100
NET: 006:04:55:28
LON: 67.2 E

MET
DAY 006
05:00
(A1) B2
AUTO
VERB
RT 0.2
DB 0.1

STS-4 DETAILED

PLT

NOTES

MCC

AUTO MWR TO 751 AIT

SINGLE C2 CPC OPS
(ORBIT OPS C/L, OPS)

UPLINK
ORBITER S.V.

CO2 RESORBER REPLACEMENT
(9 into A)

EDEL CELL PURGE - RMD (Que Card)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ORIGINAL RECORD
OF POOR QUALITY

STS-4 DETAILED

NET 0600
 DRY006
 (AI) B2
 T AUTO
 S VERN
 R RT 0.2
 A R D8 0.1

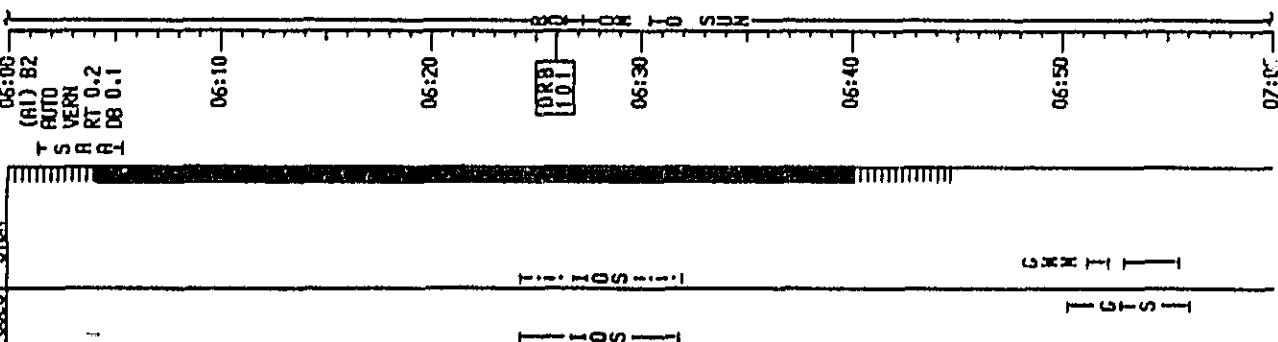
SOLSTN

CDR

PLT

NOTES

MCC



WCC DAILY
 COORD CCM/FDR
 LIMITS CLEANUP
 FOR OREN SLEEP

ASCENDING NODE
 DB8: 101
 MET: 006:56:25:56
 LON: 44.0 E

ORIGINATOR:
 OF POOR

UPLINK
 SPC LOFO -
 1ST DOWN
 ALERT
 UPLINK
 SPC LOFO -
 10S DOWN
 DMI
 RDR SLEEP
 CONFIC

३३८

STS-4 DETAILED

MET 8 PM
 DRY006

SEAS STON

12:00 (R1) B2
 AUTO
 VERH
 RT 0.2
 DB 0.1

12:10

12:20

12:30 DRY 10.5

12:40

12:50

13:00

CDR

SLEEP

PLT

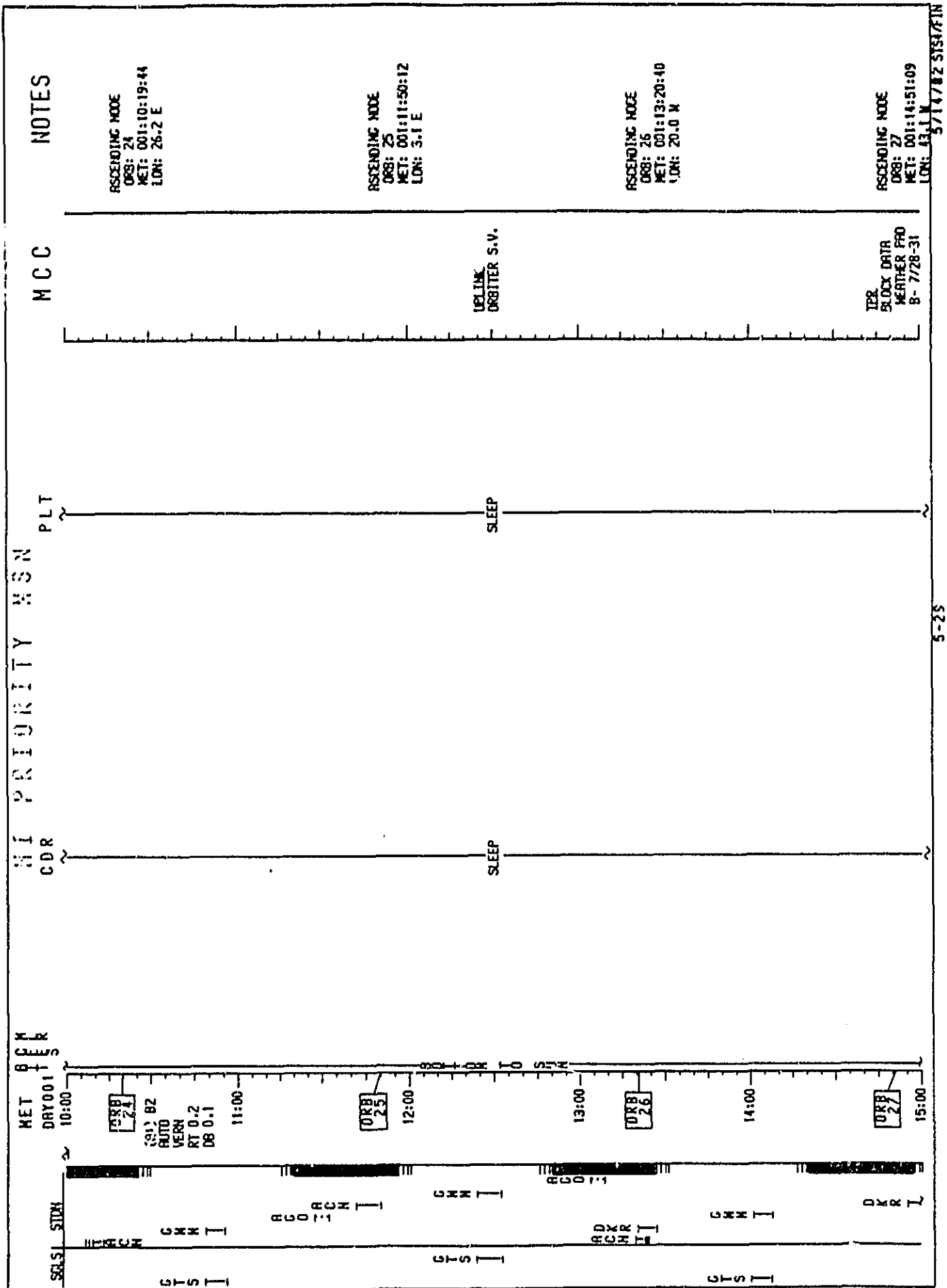
SLEEP

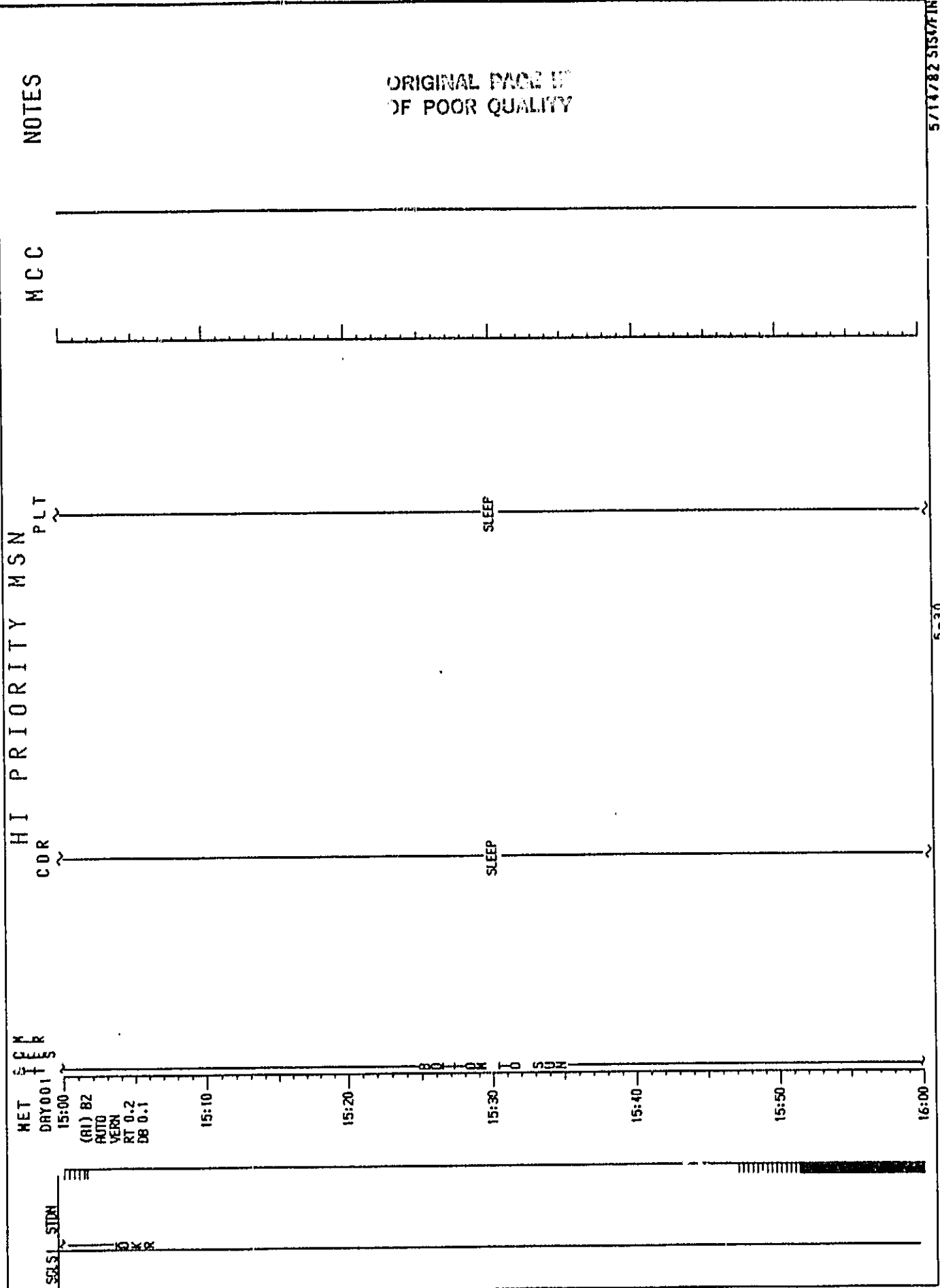
MCC

NOTES

ASCENDING NODE
 ORB: 105
 MET: 006:12:27:48
 LON: 48.5 N

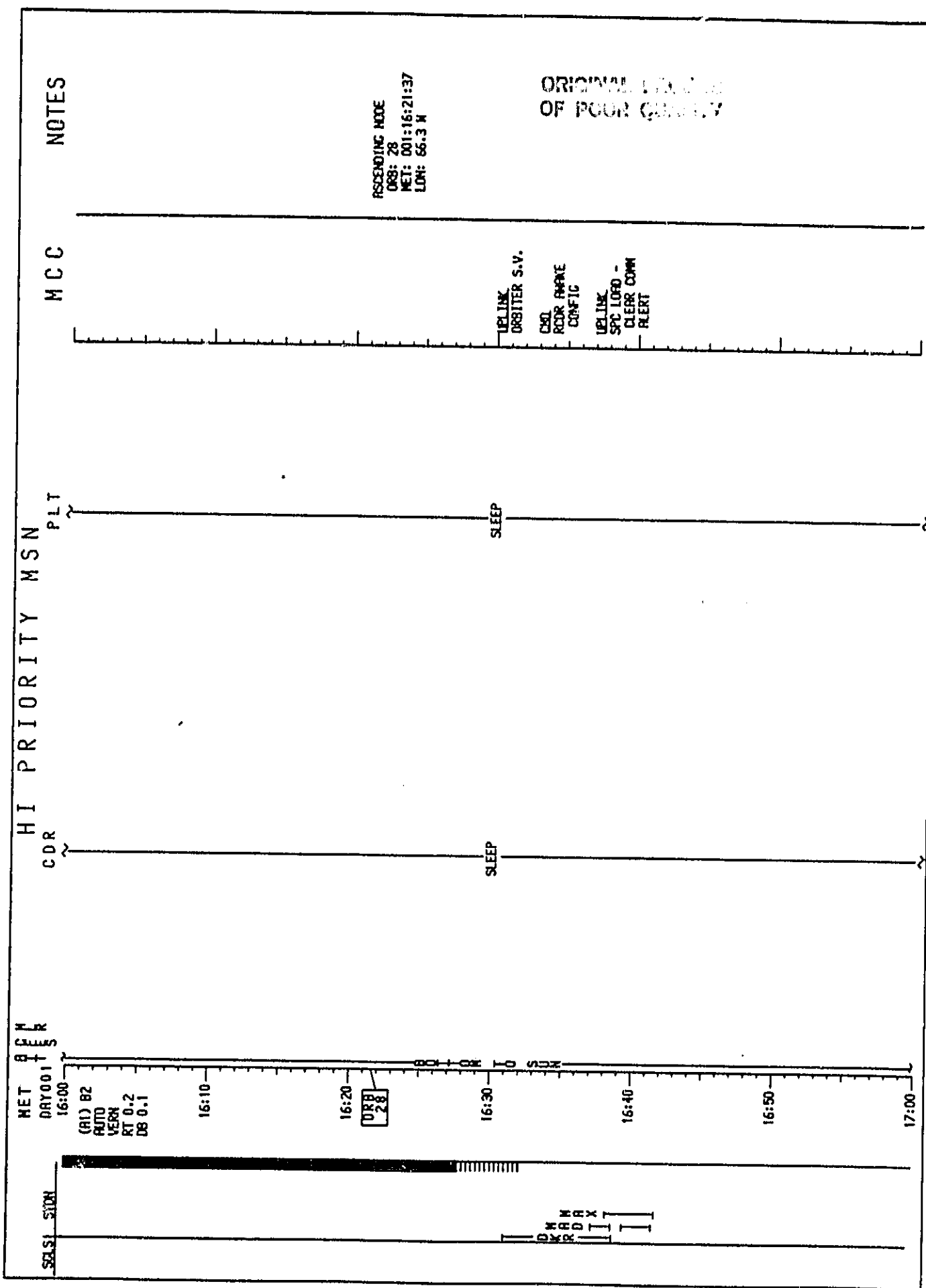
ORIGINAL PRINT
 OF POOR QUALITY





5/14/82 STS/TH

5-30



MET
DAY 001
17:00

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

SOLS1 STDN

HI PRIORITY MSN

CDR

PLT

SLEEP

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 29
MET: 001:17:52:05
LON: 89.4 N

MET RCM		HI PRIORITY MSN		MCC		NOTES	
CDR		PLT					
<p>POST SLEEP ACTIVITY (ORBIT OPS C/L, CREW SYS)</p>		<p>POST SLEEP ACTIVITY (ORBIT OPS C/L, CREW SYS)</p>		<p>UPDATE H2O SPLY DUMP QTY TX A & B INFORM CREW SN CKPT - READ/NOT READ</p>			
<p>TELEPRINTER MESSAGE REVIEW</p>		<p>TELEPRINTER MESSAGE REVIEW</p>					
<p>OVER C2 OPS (ORBIT OPS C/L, OPS)</p>		<p>ERCS THERMAL SURVEY (PULSE MODE - FTO 412-07) (ORBIT OPS C/L, RCS ETO's) Perform Step 1 (CONFIGURE FOR TRANSLATION) AUTO HMR TO LML ALIGN ATT MNR OPTION: R - 12.4 P - 208.6 Y - 4.9 DAP: R/AUTO/VERN (18:50) Initiate MNR</p>		<p>VPC FREEZER TEST (FTO 467-01) Record elapsed time indicator reading FREEZER PHR - ON Record time, freezer temp, condenser temp Repeat once per minute for 15 minutes or until temp stabilizes</p>		<p>Stars 51 & 22 available from 1/18:52 to 1/19:29</p>	

HET
DAY 001
19:00

CDR
HI PRIORITY MSN
PLT

MCC
NOTES

STAR TRACKER SELF-TEST
(ORBIT OPS C/L, GNC)
IMU ALIGNMENT - S TXK
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 51, ATRIA
-Z: 22, ALTAIR
RNC DIF: 84.0

WPC FREEZER TEST (FTO 467-01)

WATER SAMPLE FREEZING
Mxxx Unslow H2O sample container
and fill with H2O
M996 Insert container into freezer,
Record time / :
Changeout wireless
headset battery pack

AUTO MNR ID -ZSL AIL (FTO 412-01)
MNR OPTION: R + 309.1
P + 234.6
Y + 59.4
DAP: B/AUTO/VERN
(19:10) Initiate MNR

EC PURGE - MEMPH (Cue Card)

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =

REPORT: IMU ALIGN RESULTS

RPT: IMU ALIGN RESULTS

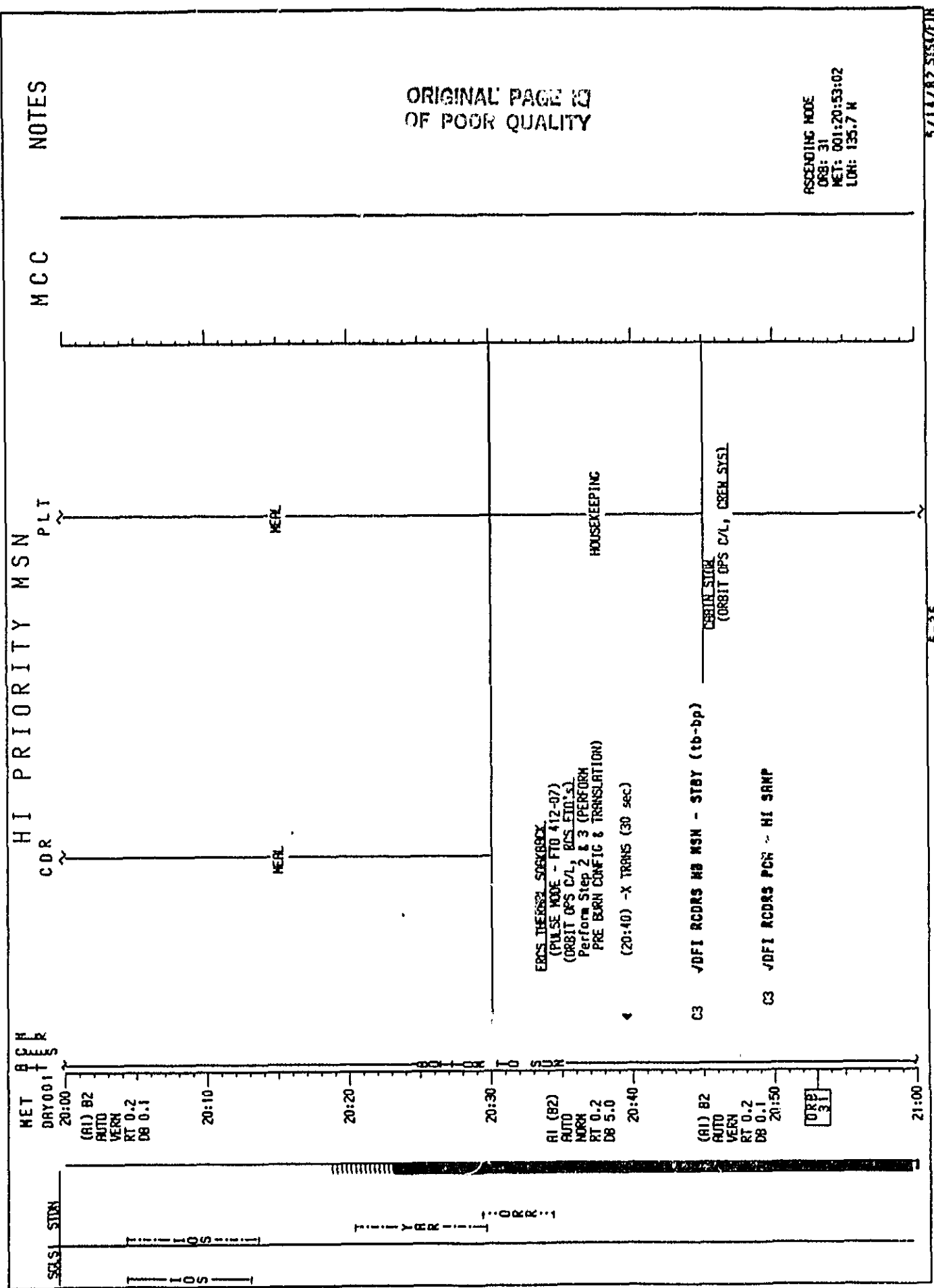
ORIGINAL PAGE 10
OF POOR QUALITY

ASCENDING NODE
ORG: 30
MET: 001:19:22:33
LON: 112.6 N

EXECUTION TIME: /

IMU ALIGN PRO

TPK ID 1, RNC EBR 3
A X () () () ()
A Y () () () ()
A Z () () () ()



5/14/82 STS/FR

5-35

NET
DAY 001

HI PRIORITY MSN
CDR

NOTES

MCC

ERCS THERMAL SDR/DBCK
(PULSE MODE - FTD 412-07)
(ORBIT OPS C/L, RCS ETD's)
Perform Step 3 (PERFORM TRANSLATION)

(21:10) -X TRANS (30 sec)

C3 JDFI RCDRS MB MSN - STBY (tb-bp)

C3 JDFI RCDRS PCN - HI SRMP

ERCS THERMAL SDR/DBCK
(PULSE MODE - FTD 412-07)
(ORBIT OPS C/L, RCS ETD's)
Perform Step 3 (PERFORM TRANSLATION)

(21:40) -X TRANS (30 sec)

C3 JDFI RCDRS MB MSN - STBY (tb-bp)

C3 JDFI RCDRS PCN - HI SRMP

ORIGINAL PAGE 10
OF POOR QUALITY

UPLINK
ORBITER S.V.
TYPE
BLOCK DATA
WEATHER PRO
B- 8/32-35

CABIN STOW

HI PRIORITY MSN

NOTES

MCC

PLT

SO/SI STON

MET 8 GEEK
DAY001 T ES

22:00

RI (B2)
AUTO
NORM
RT 0.2
DB 5.0

22:10

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

22:20

088 32

RI (B2)
AUTO
NORM
RT 0.2
DB 5.0

22:40

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

22:50

23:00

ERCS THERMAL SORNBODY
(PULSE MODE - FTO 412-07)
(088IT OPS C/L, RCS ETO's)
Perform Step 3 (PERFORM TRANSLATION)

(22:10) -X TRANS (30 sec)

C3 -/DFI RCORS NB MSN - STBY (tb-bp)

C3 -/DFI RCORS PCN - HI SAMP

ERCS THERMAL SORNBODY
(PULSE MODE - FTO 412-07)
(088IT OPS C/L, RCS ETO's)
Perform Step 3 & 4 (PERFORM
TRANSLATION & POST BURN RECONFIC)

(22:40) -X TRANS (30 sec)

C3 -/DFI RCORS NB MSN - STBY (tb-bp)

C3 -/DFI RCORS PCN - HI SAMP

DEL POWER UP (NIL)
R11:H DFI PCN CONT 1,2,3 SCSC (three) - ON

DEL POWER DOWN
R11:H DFI PCN CONT 1,2,3 SCSC (three) - OFF

ASCENDING NODE
D88: 32
MET: 001:22:23:30
LON: 158.9 W

ORIGINAL PAGE
OF POOR QUALITY

HI PRIORITY MSN

NET ACK
00:00:00

CDR

PLT

NOTES

MCC

IECM CSS RELEASE (FSD 5431-01)

GNC INTRV PDC

BODY VECT +2 (-X Axis)

(00:07) Initiate ROT

IECM - FDS 1, Wait 30 sec

IECM - FDS 2

R11

←

ORIGINAL. PG. 12
OF POOR QUALITY

MET
DAY 002
01:00

HI PRIORITY MSN
PLT
CDR

NOTES

MCC

SGLS1 SUN

R2
BEIL STERN VENT HTR ACT
JBLR CNTRL PAR/HTR (three) - B
CNTRL (three) - ON

ITEMS RELEASE (FSD S431-01)
[CNC UNIV PTC]

(01:02) STOP - ITEM 21 (2)
Change DRP A: ROT DISC RATE VERN - 0.2"/sec
DB ATT VERN - 1.0"

AUTO MNR IN - 751 ETL (FTO 412-01)
MNR OPTION: R - 309.1
P - 234.6
Y - 59.4

ECS CHECKOUT
(ORBIT OPS C/L, CNC)
Step 1 - FCS & DED DISPLAY
CONFIC

DAP: B/AUTO/VERN
(01:05) Initiate MNR
ECS CHECKOUT
(ORBIT OPS C/L, CNC)
Step 1 - FCS & DED DISPLAY
CONFIC

07 TACAN (three) MODE - T/R
AUT SEL - LOWER, UPPER, LOWER
CH 1 - 047x
CH 2 - 090x
CH 3 - 100x

ECS CHECKOUT
(ORBIT OPS C/L, CNC)
Step 2 - DPS CONFIC FOR FCS C/O

L1 HI LOU DUCT HTR - A
(S88 THERMAL EVAP)
(30 min prior to FCS ENABLE
for PLBD OPS)

ECS CHECKOUT
(ORBIT OPS C/L, CNC)
ON-ORBIT FCS CHECKOUT,
PART 1 & 2

ECS CHECKOUT
(ORBIT OPS C/L, CNC)
ON-ORBIT FCS CHECKOUT,
PART 1 & 2

07 TACAN AUT SEL (three) - UPPER
CH 1 - 102x
CH 2 - 114x
CH 3 - 098x

USLINC
ORBITER S.V.

ASCENDING NODE
ORB: 34
MET: 032:01:24:26
LON: 154.8 E

ORIGINAL PAGE 1
OF POOR QUALITY

5-10

5/14/82 STSM/71N

[illegible]

AL343515 28/11/15

MET
DAY 002

HI PRIORITY MSN
CDR PLT

NG:ES

MCC

PLBD PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)

PLBD PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)

ORIGINAL PAGE
OF POOR QUALITY

5/14/82 SIS/FR

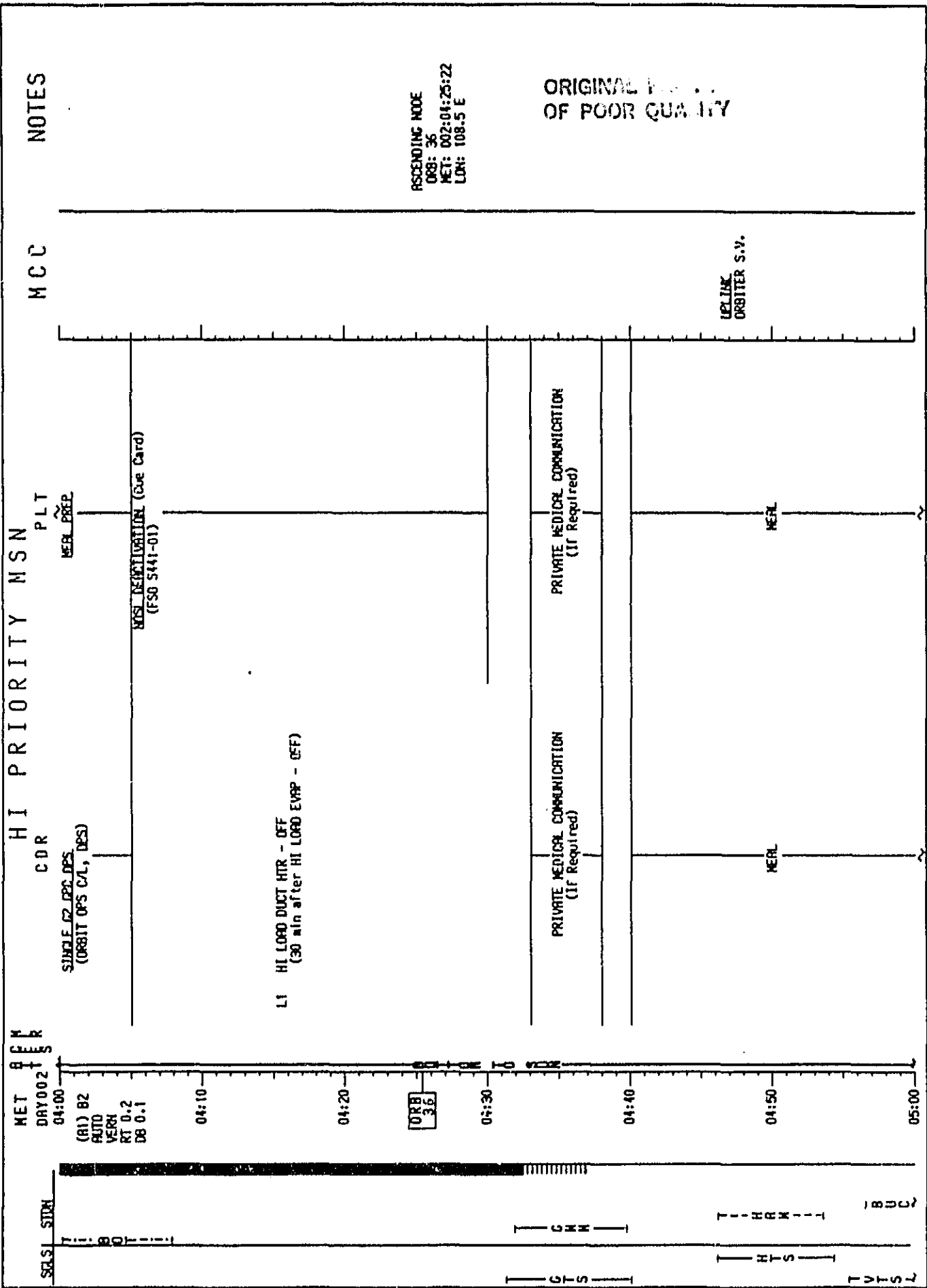
5-42

REAL PREP (Due Card)
Prepare Day 3, REAL C

ITEM 23 EXEC (no *)
JET DES FZF - ITEM 23 EXEC (no *)
PRIMARY RJD DRIVER (eight) - ON
ERCS THERMAL SOAKBACK (FTO 412-06)
(ORBIT OPS C/L, RESLEIN's)
Perform Step 2 (PERFORM TRANSLATIONS)
Unit THC -X envr
(03:50) -X TRANS (30 sec)

CD3 JDFI RCDRS MB MSN - STBY (tb-bp)

CD3 JDFI RCDRS MB MSN - STBY (tb-bp)
GAP: B/AUTO/VERN
PRIMARY RJD DRIVER (eight) - OFF
JDFI RCDRS PCN - W1 SAMP



NET 0000
DAY 002

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

SQSL STDN

VT S

HI PRIORITY MSN
COR

PLT

MCC

NOTES

ORIGINAL PAGE 10
OF POOR QUALITY

ASCENDING NODE
ORB: 37
MET: 002:05:55:50
LON: 85.3 E

MEPL

MEPL

CERIN STON
(ORBIT OPS C/L, CERE SYS)

CERIN STON
(ORBIT OPS C/L, CERE SYS)

ORB 37

5-11

5/14/82 SISL/TH

NET 8 CM
DAY002

SCS1 STON

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

06:10

06:20

06:30

06:40

06:50

A1 (B2)
AUTO
VERN
RT 0.2
DB 1.0

07:00

HI PRIORITY MSN

CDR

PLT

COBIN STON
(ORBIT OPS C/L, CREW SYSL)

COBIN STON
(ORBIT OPS C/L, CREW SYSL)

MCC

NOTES

ORIGINAL
OF POC

HYD THERM CONTROLLING THERMISTE
(ORBIT OPS C/L, REU/HD)

AUTO MNR TO IMAGIGN ATT
MNR OPTION: R * 261.0
P * 349.6
Y * 39.0
DAP: R/AUTO/VERN
(00:50) Initiate MNR

Stars 43 & 28
available from
2/06:57 to 2/07:36

HI PRIORITY MSN PLT

CDR ~

NOTES

MCC

INITIAL ALIGNMENT - 5 TRK
(ORBIT OPS C/L, GNC)
STRK ID: -Y: 43, RSGALHRCIE
-Z: 28, AL NA'IR
RNC DIF: 85.0
REPORT: INITIAL ALIGN RESULTS
0.4 DEL/SEC PID XPR - INITIATE
(FTO 412-01)
MNR OPTION: R: 165.8
P: 232.6
Y: 58.3
DAP: A/AUTO/VERN
(07:10) Initiate MNR

PHASED DEACTIVATION
(OPERATIONS C/L, TBR E)

GAS DEACTIVATION (Due Card)
(FSD 5435-01)

SLOW GAS FASTER (Due Card)

EXECUTION TIME: / - - - - -

RPT: IM: ALIEN RESULTS

ASCENDING NODE
ORB: 38
MET: 002:07:26:18
LDN: 62.2 E

ORIGINAL PAGE 10
OF POOR QUALITY

LEADIE
H2O SPLY DUMP
QTY TR A & B

NOT ONLY
COORD CUM/EDR
LIMITS CLEANUP
FOR CREW
SLEEP

UPLINK
SPC LOGO -
1ST DOWN
ALERT
CNO
RDDR SLEEP
CONFIC

POST OPERATIONS DOCUMENTATION
(OPERATIONS C/L, TBR P2014 R P2015)

PHASED DEACTIVATION
(OPERATIONS C/L, TBR E)

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TRS A & B
Dump to:
QTY A = QTY B =
ELECT CELL PURGE - AUTO (Due Card)

ORBIT OPS C/L, ECLS
Dump TRS A & B
Dump to:
QTY A = QTY B =
ELECT CELL PURGE - AUTO (Due Card)

ORBIT OPS C/L, ECLS
Dump TRS A & B
Dump to:
QTY A = QTY B =
ELECT CELL PURGE - AUTO (Due Card)

ORBIT OPS C/L, ECLS
Dump TRS A & B
Dump to:
QTY A = QTY B =
ELECT CELL PURGE - AUTO (Due Card)

ORBIT OPS C/L, ECLS
Dump TRS A & B
Dump to:
QTY A = QTY B =
ELECT CELL PURGE - AUTO (Due Card)

ORBIT OPS C/L, ECLS
Dump TRS A & B
Dump to:
QTY A = QTY B =
ELECT CELL PURGE - AUTO (Due Card)

ORBIT OPS C/L, ECLS
Dump TRS A & B
Dump to:
QTY A = QTY B =
ELECT CELL PURGE - AUTO (Due Card)

ORBIT OPS C/L, ECLS
Dump TRS A & B
Dump to:
QTY A = QTY B =
ELECT CELL PURGE - AUTO (Due Card)

5/14/82 SIS/IN

5-46

NOTES

MCC

HI PRIORITY MSN
CDR PLT

MET
DAY 002
08:00

R2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

FIRE/SMOKE DETENT/SUPPRESS TEST
(ORBIT OPS C/L, EPS)

C02 PASSENGER REPLACEMENT
(5 into 8)

ANNUNCIATOR, C/L LAB TEST
(ORBIT OPS C/L, EPS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ORIGINAL PAGE 10
OF POOR QUALITY

TPR
BLOCK DATA
WEATHER PRO
8-10/40-43

C3 J0F1 RECORDS PCM - LO SRMP

ASCENDING NODE
ORB: 39
MET: 002:08:56:46
LON: 39.0 E

5-17

5711782 STS471H

HET
09:00
09:10
09:20
09:30
09:40
09:50
10:00

CD-R
HI PRIORITY MSN
PLT

NOTES

MCC

ORIGINAL PAGE IS
OF POOR QUALITY

UPLINK
ORBITER S.V.

SLEEP

SLEEP

5-48

5714782 SIS071R

ORIGINAL PAGE IS
OF POOR QUALITY

5/14/82 STS/FH

NOTES

MCC

HI PRIORITY MSN
PLT
CDR

NET
DRY0021

SCSI SUM

15:00
R2 (B1)
R100
VERN
RT 0.4
DB 1.0

15:10

15:20

15:30

15:40

15:50

16:00

SLEEP

SLEEP

PLC X 6 DB

OKK M R D I

5-50

NET 8 CM
DRY002

SLSI STDN

16:00
R2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

16:10

16:20

16:30

16:40

16:50

17:00

M
DRD
T
M
R
X
I

HI PRIORITY MSN

CDR

PLT

SLEEP

SLEEP

MCC

NOTES

ASCENDING MODE
DRB: 44
MET: 002:16:29:04
LON: 76.6 N

ORIGINAL PAGE 13
OF POOR QUALITY

CDR
RDR
RDR
CONFIC
UPLINK
SPC LDRD-
CLEAR COM
ALERT

HI PRIORITY MSN

MET 0002
DRY002

CDR

PLT

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

NOTES

MCC

UPDATE
H2O SPLY DUMP
QTY TK R & B
IMMENSE DEEM
SM CRPT -
REQD/NOT REQD

ORIGINAL PAGE 19
OF POOR QUALITY

ASCENDING NODE
ORB: 45
MET: 002:17:59:32
LOR: 59.8 M
5/14/82 SISV/TN

5-52

SQSI STDN

17:00
R2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

17:10

17:20

17:30

17:40

17:50

18:00

ORB
45

ORR 1:1 11

NET 0800
DRY00215

HI PRIORITY MSN

PET

CDR

NOTES

MCC

ORIGINAL PAGE 13
OF POOR QUALITY

ASCENDING NODE
ORB: 46
MET: 002:19:30:00
LON: 122.9 W

TIER
BLOCK DATA
WEATHER PRO
B- 12/48-51

LEPRAE
COT TOWER
SETUP PRO

R11 OEX PAR - ON

Copy: CRT TIMER SETUP PRO UPGRADE
in DEORBII PREP, 3-7

[Go to DEORBII PREP]

CLERK/STORAGE (Cue Card)
Steps 1-4

HERL

HERL

ORB
46

5-54

5/11/78Z 515071N

ONE-DAY EXTENSION

The STS-4 Extension Timeline is designed to follow a nominal flight up to the decision point for the 24 hour extension. This GO/NO GO decision point occurs at MET 6/00:25, prior to entry-related activities for the nominal flight.

Also, this timeline may be used after the D/O PREP BACKOUT has been executed on FD 8.

24 HOUR EXTENSION CASE:

- o Execute detailed timeline pages from 6/00:00 to Deorbit Prep on FD 9
- o A period of time with no scheduled activities is provided immediately following the GO/NO GO to allow preparations for the extension of the flight.

AFTER DEORBIT PREP BACKOUT CASE:

Begin timeline at 7/00:30 with the following changes:

- o CDR - MCC will modify PTC to -ZLV as required (5-83); omit CABIN TV STOW at 7/04:15 MET
- o PLT - Omit all activities between MET 7/02:10 and 7/04:20 (i.e., P/L DEACT, CABIN STOW, CO₂ ABSORBER REPLACEMENT)

ONE-DAY
EXTENSION

ONE-DAY EXTENSION

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
184:15:00/ 185:03:00		006:00:00/ 006:12:00		184:10:00/ 184:22:00		7/ 184 CDT		16.3		0		JULY 3, 1982		STS-4		FINAL		05/14/82	
GMT : 184 15		16		17		18		19		20		21		22		23		24	
FD 7		1		2		3		4		5		6		7		8		9	
MET : 006 0		1		2		3		4		5		6		7		8		9	
CDR		MEAL		MEAL		MEAL		MEAL		MEAL		MEAL		MEAL		MEAL		MEAL	
PLT		MEAL		MEAL		MEAL		MEAL		MEAL		MEAL		MEAL		MEAL		MEAL	
DAY/NIGHT		DAY		DAY		DAY		DAY		DAY		DAY		DAY		DAY		DAY	
ORBIT		96		97		98		99		100		101		102		103		104	
EARTH TRACE K/SAR		H		H		H		H		H		H		H		H		H	
GSTON COVERAGE		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS	
SCLS COVERAGE		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS	
Q/S DEORB KSC EDK		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS	
ATTITUDE		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS	
MANEUVERS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS	
TVZTR		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS	
CPES		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS	
MLR		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS	
NOTES:		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS		YAR - HLY - ACH - BOT - CDS	

ORIGINAL PAGE 11
OF POOR QUALITY

05/14/82 SIS/PH

5-56

CNT (D:H:M)		MET (D:H:M)		COT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE			
185:03:00/ 185:19:00		006:12:00/ 007:00:00		184:22:00/ 185:10:00		7/ 184 COT		18.8		0		JULY 4, 1982		STS-4		FINAL		05/14/82			
CNT : 185 3		4		6		8		9		10		11		12		13		14		15	
FD 7		13		14		15		16		17		18		19		20		21		22	
MET : 006 12		13		14		15		16		17		18		19		20		21		22	
COR		SLEEP		POST SLEEP ACT		PUBO CYCLE TEST		MERL		PUBO CYCLE TEST		MERL		EQUIP PREP		EVA PREP		EMU/ AIR/OX EWL		EVA SUPPORT	
PLT		SLEEP		POST SLEEP ACT		PUBO CYCLE TEST		MERL		PUBO CYCLE TEST		MERL		EQUIP PREP		EVA PREP		EMU/ AIR/OX EWL		EVA SUPPORT	
DAY/NIGHT		104		105		106		107		108		109		110		111		112			
EARTH TRACE W/SAA		104		105		106		107		108		109		110		111		112			
CSTDH COVERAGE		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR	
SGLS COVERAGE		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR	
OPS DEORB KSC EDM		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22	
ATTITUDE		BOTTOM TO SUN		BOTTOM TO SUN		BOTTOM TO SUN		BOTTOM TO SUN		BOTTOM TO SUN		BOTTOM TO SUN		BOTTOM TO SUN		BOTTOM TO SUN		BOTTOM TO SUN		BOTTOM TO SUN	
MANEUVERS		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22	
TV/VTR		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22	
CFES		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22	
MLR		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22		16:22	
NOTES:		<p>ORIGINAL PAGE NO. OF POOR QUALITY</p> <p>0 FTO 451-03 PUBO COLD CASE PERFORMANCE 0 FTO 412-01 ATT HOLD THERMAL RESPONSE 0 STAIR SELF TEST</p> <p>0 FTO 471-01 S-BRO & UFF ATT PATTERNS</p>																			

ORIGINAL PAGE 12
OF POOR QUALITY

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DPY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
185:15:00/ 185:03:00		007:00:00/ 007:12:00		185:10:00/ 185:22:00		/ 185 DDT		20.7		MOON		JULY 4, 1982		STS-4		FINSL		05/14/82	
CMT : 185 15		16		17		18		19		20		21		22		23		24	
FD 8		1		2		3		4		5		6		7		8		9	
MET : 007 0		0		1		2		3		4		5		6		7		8	
CDR		HKL		MERL		CRBIN STON		TV		PSE SLEEP		ACT		SLEEP		SLEEP		SLEEP	
PLT		MERL HK		MERL		CRBIN STON		TV		PSE SLEEP		ACT		SLEEP		SLEEP		SLEEP	
DAY/NIGHT		112		113		114		115		116		117		118		119		120	
ORBIT		112		113		114		115		116		117		118		119		120	
EARTH TRACE		112		113		114		115		116		117		118		119		120	
W/SAR		112		113		114		115		116		117		118		119		120	
CSTON		-BOT		-CMW		-ACN		-BOT		-CMW		-ACN		-BOT		-CMW		-ACN	
COVERAGE		-BOT		-CMW		-ACN		-BOT		-CMW		-ACN		-BOT		-CMW		-ACN	
SGLS		-CTS		-HTS		-VTS		-CTS		-HTS		-VTS		-CTS		-HTS		-VTS	
COVERAGE		-CTS		-HTS		-VTS		-CTS		-HTS		-VTS		-CTS		-HTS		-VTS	
OPS		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17	
LEONR KSC		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17	
EDM		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17		1 00:17	
ATTITUDE		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP	
MANEUVERS		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP	
TV/VTR		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP	
CFES		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP	
MLR		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP		PTC XPP	
NOTES:		FSD 5441-01 MESL OPERATIONS		FSD 5441-01 MESL OPERATIONS		FSD 5441-01 MESL OPERATIONS		FSD 5441-01 MESL OPERATIONS		FSD 5441-01 MESL OPERATIONS		FSD 5441-01 MESL OPERATIONS		FSD 5441-01 MESL OPERATIONS		FSD 5441-01 MESL OPERATIONS		FSD 5441-01 MESL OPERATIONS	

05/14/82 515471M

5-58

GHT	(D:H:M)	MET	(D:H:M)	CDT	(D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
186:03:00/	186:15:00	007:12:00/	008:00:00/	185:22:00/	186:10:00/	8/185	CDT 22.7		JULY 5, 1982	STS-4	FINAL	05/14/82		
TTC														
GHT: 186	3	109	13	5	6	7	8	9	10	11	12	13	14	15
FD 8														
MET: 007	12	14	15	16	17	18	19	20	21	22	23	24	25	26
CDR	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
PLT	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
DAY/NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
ORBIT	120	121	122	123	124	125	126	127	128	129	130	131	132	133
MON UP/DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
EARTH TRACE W/SRA														
CDR	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
PLT	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
DAY/NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
ORBIT	120	121	122	123	124	125	126	127	128	129	130	131	132	133
MON UP/DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
EARTH TRACE W/SRA														
CDR	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
PLT	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
DAY/NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
ORBIT	120	121	122	123	124	125	126	127	128	129	130	131	132	133
MON UP/DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
EARTH TRACE W/SRA														
CDR	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
PLT	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
DAY/NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
ORBIT	120	121	122	123	124	125	126	127	128	129	130	131	132	133
MON UP/DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
EARTH TRACE W/SRA														
CDR	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
PLT	SLEEP	POST SLEEP (TR MISC) ACT	SLEEP	MEAL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN
DAY/NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
ORBIT	120	121	122	123	124	125	126	127	128	129	130	131	132	133
MON UP/DOWN	UP													

NET 8 PM
DRY006

CDR STS-4 DETAILED

PLT

NOTES

MCC

SOLE STOW

00:00 00:10 00:20 00:30 00:40 00:50 01:00

A4 (B2)

AUTO

NORR

RT 0.2

D8 5.0

DRB 97

80 TOW TO SHIP

FD 8 CO/NO CO

INDECK CREW
FD 8 CO /NO CO

ASCENDING NODE
DRB: 97
MET: 006:00:24:04
LON: 136.6 E

ORIGINAL...
OF POOR...

5-60

05/14/82 STS/PLN

STS-4 DETAILED

MET
 DRY006
 01:00

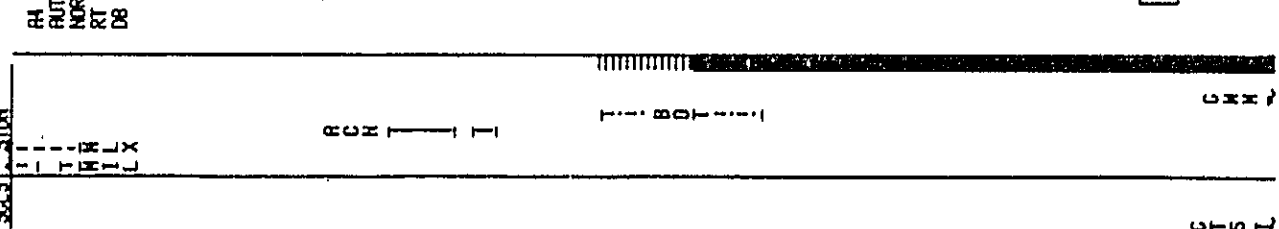
PLT

CDR

NOTES

MCC

01:00 01:10 01:20 01:30 01:40 01:50 02:00



ASCENDING NODE
 D88: 98
 MET: 006:01:54:32
 LON: 113.5 E

STS-4 DETAILED

CDR

PLT

NOTES

MCC

ORIGINAL TABLE
OF POOR QUALITY

TPR
BLOCK DATA
WEATHER PRO
B-25/101-104

NERL PREP (Cue Card)
Prepare DAT 7, NERL C

NET PER
DRY006

02:00
R4 (B2)
R400
N200
RT 0.2
D8 5.0
02:10
02:20
02:30
02:40
02:50
03:00

ST S

C H M

H T S

GG
T X S
B T T
D U I

STS-4 DETAILED

CDR

PLT

NOTES

MCC

MET 0006
DAY 006

03:00
R4 (B2)
AUTO
NORM
RT 0.2
DB 5.0

03:10

03:20

03:30

03:40

03:50

04:00

SELS STON

T: 10 S

T: 10 S

T: 10 S

T: 10 S

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =

LEDATE
H2O SPLY DUMP
QTY TK A & B

ASCENDING NODE
ORB: 99
MET: 006:03:25:00
LON: 90.3 E

ORIGINAL PRINT
OF POOR QUALITY

MEEL

MEEL

5-63

05/14/82 STS/IN

NET 8 PM
DRY006

STS-4 DETAILED

PLT

CDR

MCC

NOTES

SLIST STIM

04:00
R4 (B2)
AUTO
NOCH
RT 0.2
DB 5.0

04:10

04:20

04:30

04:40

04:50

05:00

BOTTOM TO SUN

SUN PLASN

ENGINEERS THERM SENSOR
(2 END/1 RET RCS ENG - FTO 412-06.08)
(ORBIT OPS C/L, RCS FTO's)
Perform Step 3 (RECONFIG TO NOMINAL)

BUILD MNR TO INIT ALIGN ATT
MNR OPTION: R +261.0
P +345.6
Y +39.0
DAP: B/AUTO/VERN
(04:32) Initiate MNR

INITIAL ALIGNMENT - S TRK
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 43, KASALHAGUE
-Z: 28, AL NAT'R
RNG DIF: 85.0

BUILD MNR TO 751 ATT (FTO 412-01)
MNR OPTION: R +321.2
P +224.0
Y +51.4
DAP: B/AUTO/VERN
(04:52) Initiate MNR

ORIGINAL PAGE NO.
OF POOR QUALITY

Stars 28 & 43
available from
6/04:33 to 6/05:13

TIME FROM PLT

TRK ID	1	RNG ERR	3
^ X	()	()	()
^ Y	()	()	()
^ Z	()	()	()

EXECUTION TIME: / /

ASCENDING NODE
DDB: 100
MET: 006:04:55:28
LON: 67.2 E

MET
DAY 006
05:00

(H1) B2
AUTO
VERN
RT 0.2
DB 0.1

SELSI STDN

T S T S I

G H I I

T H S I

T H R K I I

...R G O...

STS-4 DETAILED

PLT

MCC

NOTES

CDR

AUTO MANR TO 751 RTT

SINGLE B2 OPT OPS
(ORBIT OPS C/L, DES)

UPLINK
ORBITER S.V.

CO2 RESORB REPLEMENT
(9 Into R)

ELE CELL PURGE - AUTO (Doe Card)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ORIGINAL PAGE
OF POOR QUALITY

STS-4 DETAILED

MET 06:00
DAY 006

CDR

PLT

NOTES

MCC

MCC ONLY
COORD CDM/FDR
LIMITS CLEARUP
FOR CREW SLEEP

ASCENDING NODE
ORB: 101
MET: 006:56:25:56
LON: 41.0 E

ORIGINAL TIME
OF POD: 006:56:25:56

PRE SLEEP ACTIVITY

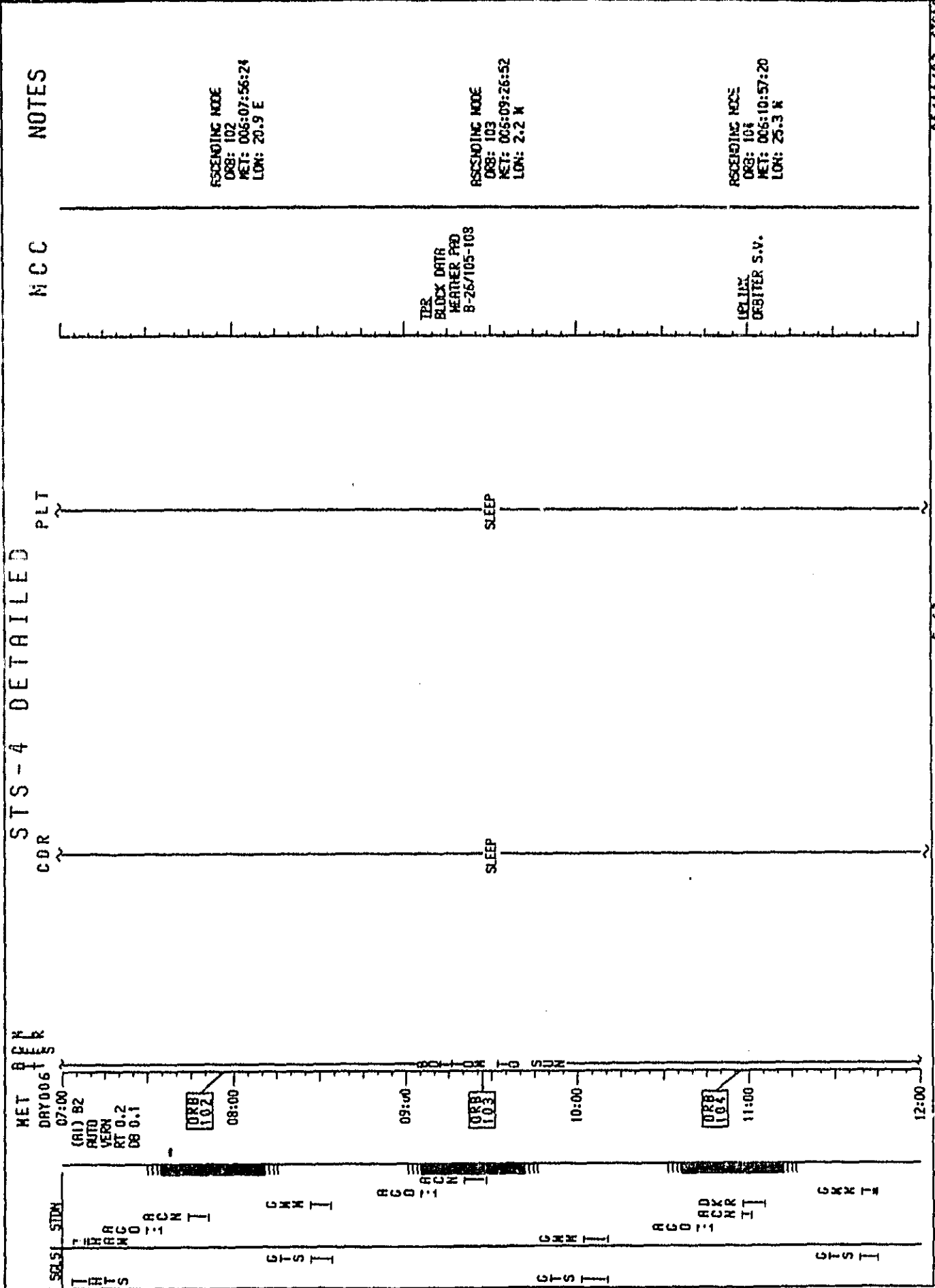
PRE SLEEP ACTIVITY

SLEEP

SLEEP

DELINK
SPC LDRD -
1ST COM
ALERT
DELINK
SPC LDRD -
105 COM
CEL
RDR SLEEP
CONFIC

STS-4 DETAILED



STS-4 DETAILED

MET
DRY006
12:00

(R1) B2
AUTO
VERA
RT 0.2
DB 0.1

SCS1 STDN



DKR

PLT

SLEEP

CDR

SLEEP

NOTES

MCC

ASCENDING MODE
DBB: 105
MET: 006:12:27:48
LON: 48.5 N

ORIGINAL PLOT
OF POOR QUALITY

STS-4 DETAILED

NET
DAY 006

SEL STIM

13:00
(H1) B2
AUTO
VERN
RT 0.2
DB 0.1

CDR

SLEEP

PLT

SLEEP

NOTES

MCC

OF FOUR GENERATION

ASCENDING MODE
DB: 1CS
MET: 006:13:58:15
LOC: 71.6 W

STS-4 DETAILED

MET 8:00
DAY 006

SCSI STDM

(R1) 82
AUTO
VERN
RT 0.2
DB 0.1

OH
KARD
T MAX

YARRTT

PLT

CDR

SLEEP

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

NOTES

MCC

101 LINK
SPC LOAD -
CLEAR DOWN
ALERT
CMD
RCOR PWAKE
CONFIC

INEROM CREW
SH CXT -
REDO/NOT REDO

ORIGINAL PAGE 3
OF POOR QUALITY

05/14/82 SYS/FIN

5-70

STS-4 DETAILED

MET
DAY 006
15:00

SOLSI STON

NOTES

MCC

PLT

CDR

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

POST SLEEP ACTIVITY

POST SLEEP ACTIVITY

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

UPDATE
H2O SPAY DUMP
QTY TN A & B

SUPPLY ENTER JUNE
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =

FIELD CELL PURGE - RIND (One Card)

Chargeout wireless
headset battery pack

UPDATE
DIGITER S.V.

NEAL

NEAL

ASCENDING NODE
ORB: 107
MET: 006:15:28:43
LOH: 94.8 N

STS-4 DETAILED

MET 8 PM
DAY 006

CDR

PLT

NOTES

MCC

ORIGINAL PAGE 19
OF POOR QUALITY

ASCENDING NODE

ORB: 108

MET: 006:16:59:11

LONG: 117.9 N

05/14/82 SIS/ELN

5-72

PLBD PERFORMANCE
(PLBD COLD CASE - FTO 451-03)
(ORBIT OPS C/L, PLBD FTO's)
Theodolite sightings
during PLBD operations

PLBD PERFORMANCE
(PLBD COLD CASE - FTO 451-03)
(ORBIT OPS C/L, PLBD FTO's)
Theodolite sightings
during PLBD operations

ORB
108

17:00

16:50

16:40

16:30

16:20

16:10

16:00

(R1) B2

AUTO

VERN

RT 0.2

DB 0.1

SELSI STIM

1110511

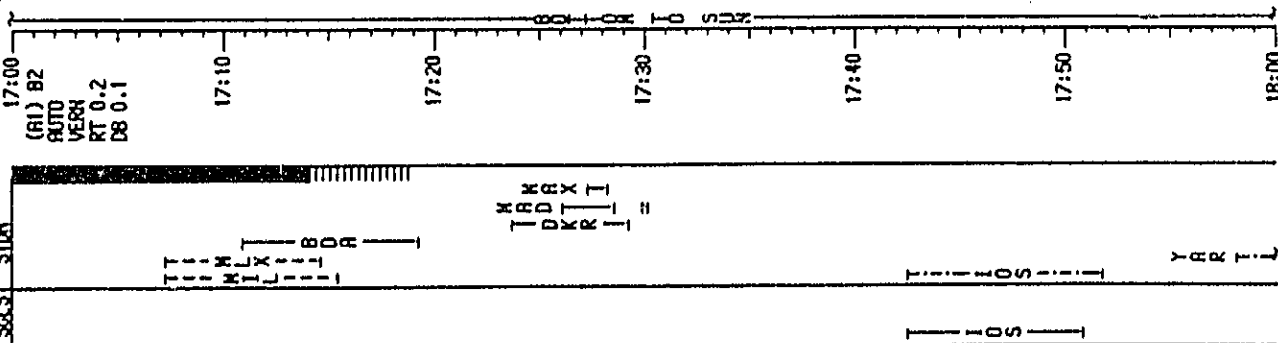
1110511

1110511

8010M TO 502

STS-4 DETAILED

NET 8 0000
DAY 006



NOTES

MCC

TPR
BLCK DATA
WEATHER PRO
B-27/109-112

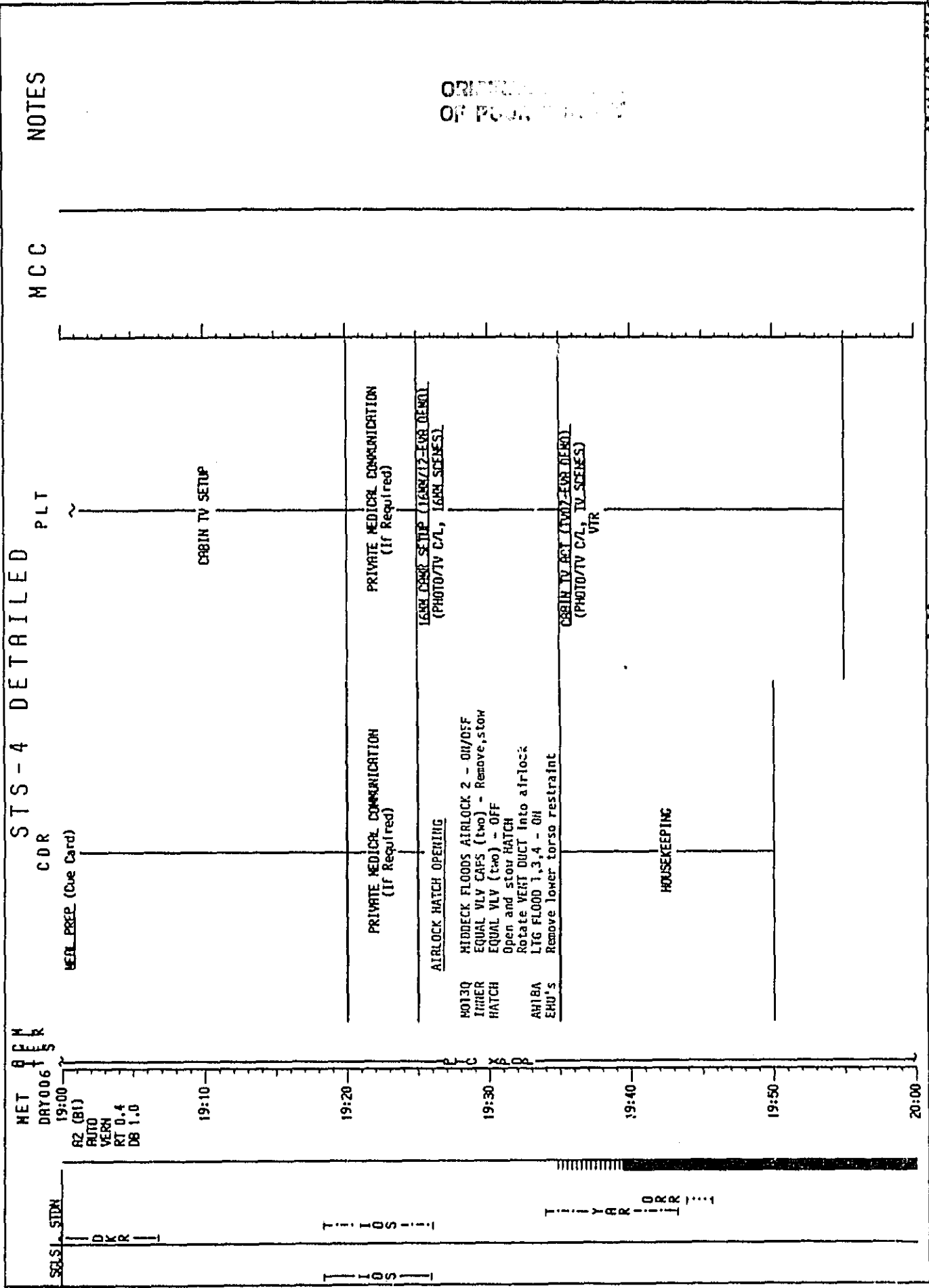
PLT

PLBD PERFORMANCE
(FTO 451-03)

CDR

PLBD PERFORMANCE
(FTO 451-03)

ORIGINAL PASTED
OF POOR QUALITY



STS-4 DETAILED

MET 0006
DAY 006

PLT

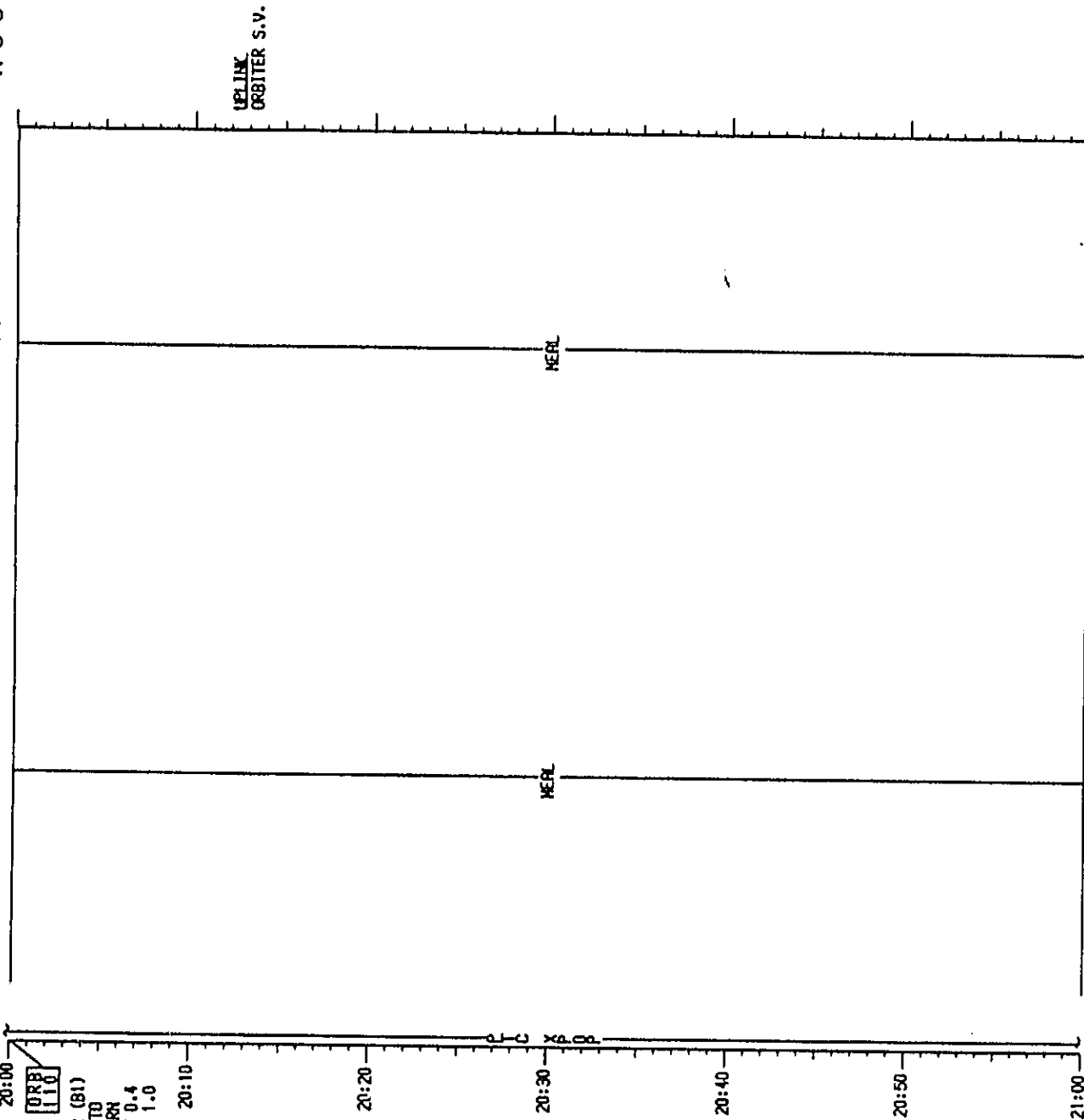
CDR

MCC

NOTES

ASCENDING NODE
ORB: 110
MET: 006:20:00:06
LON: 164.2 N

ORIGINAL PAGE 19
OF POOR QUALITY



STS-4 DETAILED

MET
DAY 006
21:00

R2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

CDR

EMI DEMO
(EVA C/L, EQUIP PREP)

PLT

16MM DEMO RCT (16MM/12-EVA DEMO)
(PHOTO/TV C/L, 16MM SCENES)

NOTES

MCC

EVA SUPPORT

EVA PREP
(EVA C/L, AIRLOCK/DECK PREP)

ORBIT OPS C/L, DPS

S-BAND ANTENNA PATTERN
(FTO 471-01)
(ORBIT OPS C/L, COMM FTO)
Configure for QDS & MIL
ROS: 6/21:47
LOS: 6/22:03

ASCENDING NODE
ORB: 111
MET: 006:21:30:34
LON: 172.6 E

ORIGINAL PAGE 13
OF POOR QUALITY

STS-4 DETAILED

MET
DAY 006

STS-4
DAY 006

NOTES

MCC

PLT

CDR

22:00

A3 (B1)

AUTO

VERN

RT 0.4

DB 1.0

22:10

A2 (B1)

AUTO

VERN

RT 0.4

DB 1.0

22:20

22:30

22:40

22:50

23:00

S-BAND ANTENNA PATTERN

SINGLE ZEPPELINS
(ORBIT OPS C/L, DES)

EVA PREP

EMERGENCY EVA
(EVA C/L, EVA PREP C/L, DES)

EVA SUPPORT

ORIGINAL PAGE 19
OF POOR QUALITY

5-78

05/11/82 515/11H

515/11

STS-4 DETAILED

NET 8 PM
DRY006

CDR

EMU LION CARTRIDGE/PLSS BATTERY
REPLACEMENT
(EVA C/L, EMU RAIN/RECHARGE)

ORB 112
R2 (BT)
AUTO
VERA
RT 0.4
DB 1.0

SLASL STON

CT S I
G W N I
H T S
V T S
G D S
T T C
B U D X
T T M I
N B L D X A
A C N

PLT

NOTES

ASCENDING NODE
ORB: 112
MET: 006:23:01:02
LON: 149.4 E

MCC

TPR
BLOCK DTR
WEATHER PRO
B-28/113-116

EVA SUPPORT

POST EVA ENTRY PREP
(EVA C/L, POST EVA ENTRY PREP)

TUOVR DEACT (TUOVR/DEAC Due Card)

1688 DEAC DEACT (1688/17-EVA DEAC)
(PHOTO/TV C/L, 1688 STONES)

ORIGINAL PAGE 11
OF POOR QUALITY

007
00:00

STS-4 DETAILED

NET 8 PM
DRY007

CDR

PLT

MDSL DEACTIVATION (Cue Card)
(FSD 5441-01)

MEBL_PRRP (Cue Card)

ORIGINAL PAGE 10
OF POOR QUALITY

ASCENDING MODE
DBS: 113
MET: 007:00:31:29
LON: 126.3 E

UPLINK
DBBITER S.V.

HOUSEKEEPING

HOUSEKEEPING

SELSI STON

00:00
A2 (81)
AUTO
VERN
RT 0.4
DB 1.0

00:10
(A2) B1
AUTO
VERN
RT 0.2
DB 1.0

00:20

00:30
DBB
113

00:40

00:50
A2 (81)
AUTO
VERN
RT 0.4
DB 1.0

01:00

STS-4 DETAILED

NOTES

MCC

PLT

CDR

MET
DAY 007
01:00
R2 (81)
AUTO
VERN
RT 0.4
DS 1.0

STS-4
VT S-1

DD
XS
NN
LX
TT
II

RCN

PLC X6.00

NEAL

NEAL

ORIGINAL PAGE 151
OF POOR QUALITY

05/14/82 SIS/PH

5-81

STS-4 DETAILED

MET PCM
DAY 007

CDR

PLT

MCC

NOTES

ORBIT STIM
(ORBIT OPS C/L, CSEM SYSTEMS)

02:00

ORR
114

R2 (61)

AUTO

VERN

RT 0.4

DB 1.0

02:10

02:20

02:30

02:40

02:50

03:00

CTSS

HTS

VTS

PARADO REACTIVATION
(OPERATIONS C/L, IER E)

POST OPERATIONS DOCUMENTATION
(OPERATIONS C/L, IER P70/11 R P70/15)

PARADO DENSITY PREPARATION
(OPERATIONS C/L, IER E)

ORBIT STIM
(ORBIT OPS C/L, CSEM SYSTEMS)

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 114
MET: 007:02:01:57
LON: 103.1 E

STS-4 DETAILED

CDR

PLT

NOTES

MCC

ORIGINAL PAGE IS
OF POOR QUALITY

04:00

04:10

04:20

04:30

04:40

04:50

05:00

DAY 007

R2 (BT)

AUTO

VERN

RT 0.4

DB 1.0

STN

HTS

HTS

HTS

HTS

04:00

04:10

04:20

04:30

04:40

04:50

05:00

04:00

04:10

04:20

04:30

04:40

04:50

05:00

04:00

04:10

04:20

04:30

04:40

04:50

05:00

04:00

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04:20

04:30

04:40

04:50

05:00

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04:20

04:30

04:40

04:50

05:00

04:00

04:10

04:20

04:30

04:40

04:50

05:00

04:00

04:10

04:20

04:30

04:40

04:50

05:00

CABIN TV STON
W57E/ Stow both cameras
W57C

CABIN STON

002 PASSENGER DEPLOYMENT
(10 into B)

EEL CELL PURGE - RM (Cue C-d)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

5-84

05/11/82 SIS/PLN

STS-4 DETAILED

NET BCM
DAY007

SQLS STON

05:00

ORB 116
R2 (BT)
AUTO
VERN
RT 0.4
DB 1.0

05:10

05:20

05:30

05:40

05:50

06:00

PLT

CDR

MCC

NOTES

ASCENDING NODE
DOB: 116
MET: 007:05:02:52
LON: 55.8 E

PRE SLEEP ACTIVITY

PRE SLEEP ACTIVITY

SLEEP

SLEEP

UPLINK
ORBITER S.V.
TPR
BLOCK DATA
WEATHER PRO
B-29/117-120
CAL
RCDR SLEEP
CONFIC
UPLINK
SPC LOAD -
1ST COMM
ALERT

ORIGINAL PAGE 12
OF FOUR QUALITY

STS-4 DETAILED

MET CDR

DAY 007

06:00

B2 (81)

RUTO

VERN

RT 0.4

DB 1.0

SLEEP

ORB 117

06:40

06:50

07:00

STS-4

.....0000.....

ACM F I

IOS I.....I

IOS I.....I

5-15

PLT

SLEEP

MCC

NOTES

ORIGINAL PAGE 13
OF POOR QUALITY

ASCENDING NODE
ORB: 117
MET: 007:06:33:19
LON: 33.7 E

5-86

05/14/82 STS/FIN

MET 0600
DAY 007

R2 (81)
AUTO
VERN
RT 0.4
D8 1.0

ORB
121

STS-4 DETAILED

SLSI STDH

CDR

PLT

MCC

NOTES

ORIGINAL PAGE 12
OF POOR QUALITY

ASCENDING NODE
ORB: 121
MET: 007:12:35:08
LON: 58.8 W

SLEEP

SLEEP

5-88

05/14/82 SIS/PH

STS-4 DETAILED

MET ACN
DRY007

SQSL STDN

CDR

PLT

MCC

NOTES

13:00
R2 (BI)
AUTO
VERN
RT 0.4
DB 1.0

SLEEP

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

ORIGINAL PAGE 13
OF POOR QUALITY

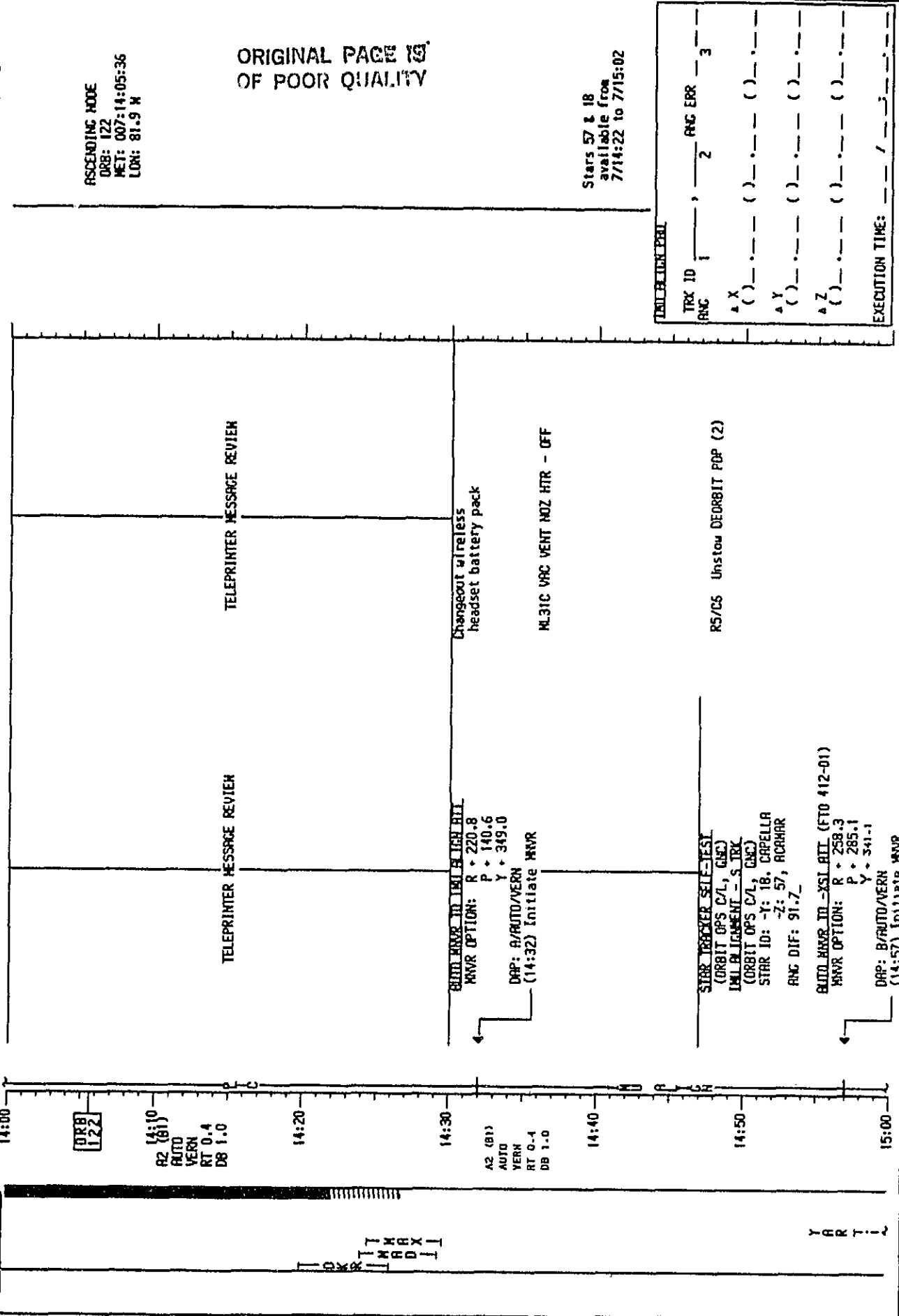
MET 0800
DAY 007

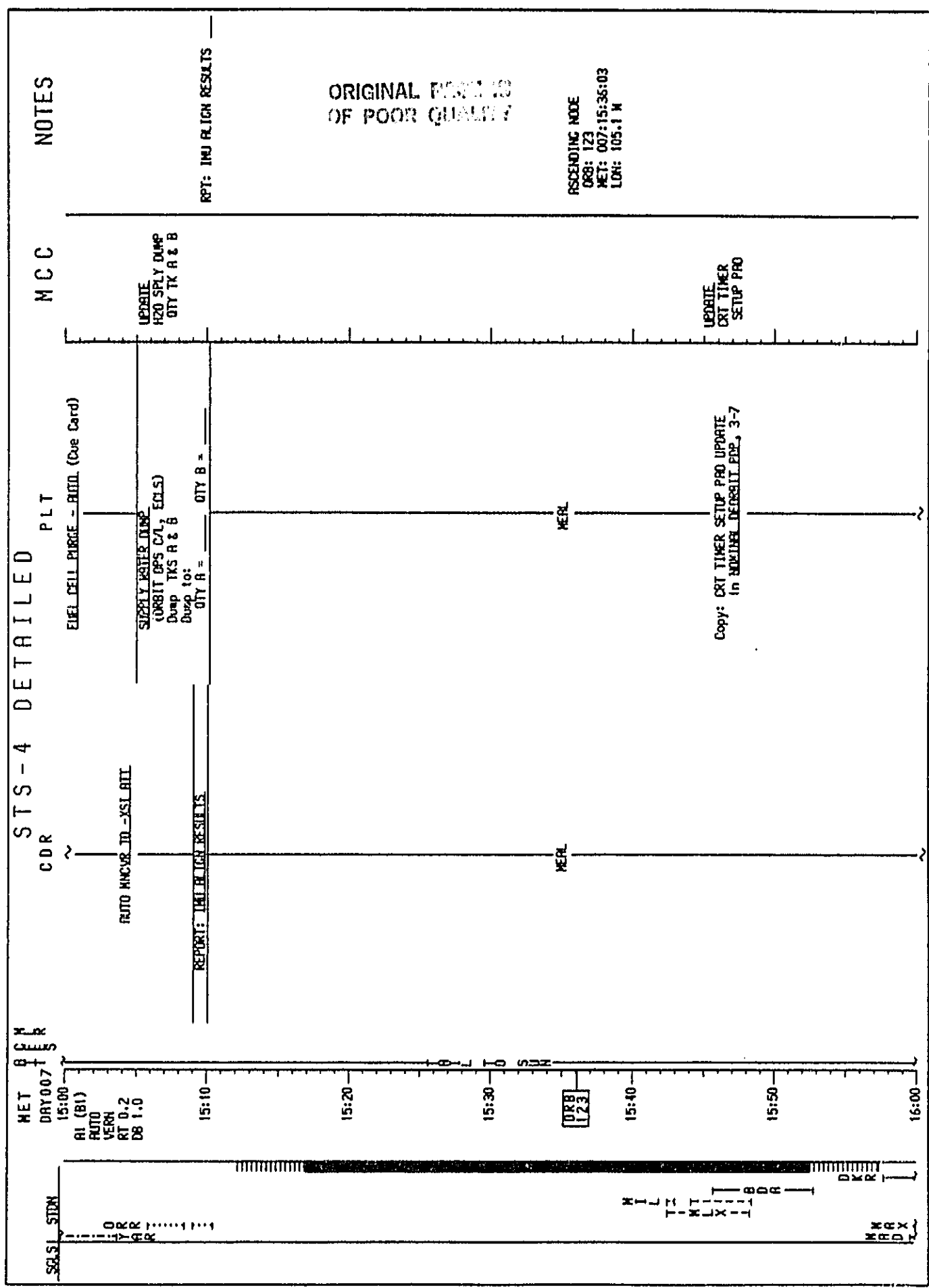
CDR STS-4 DETAILED

PLT

MCC

NOTES





STS-4 DETAILED

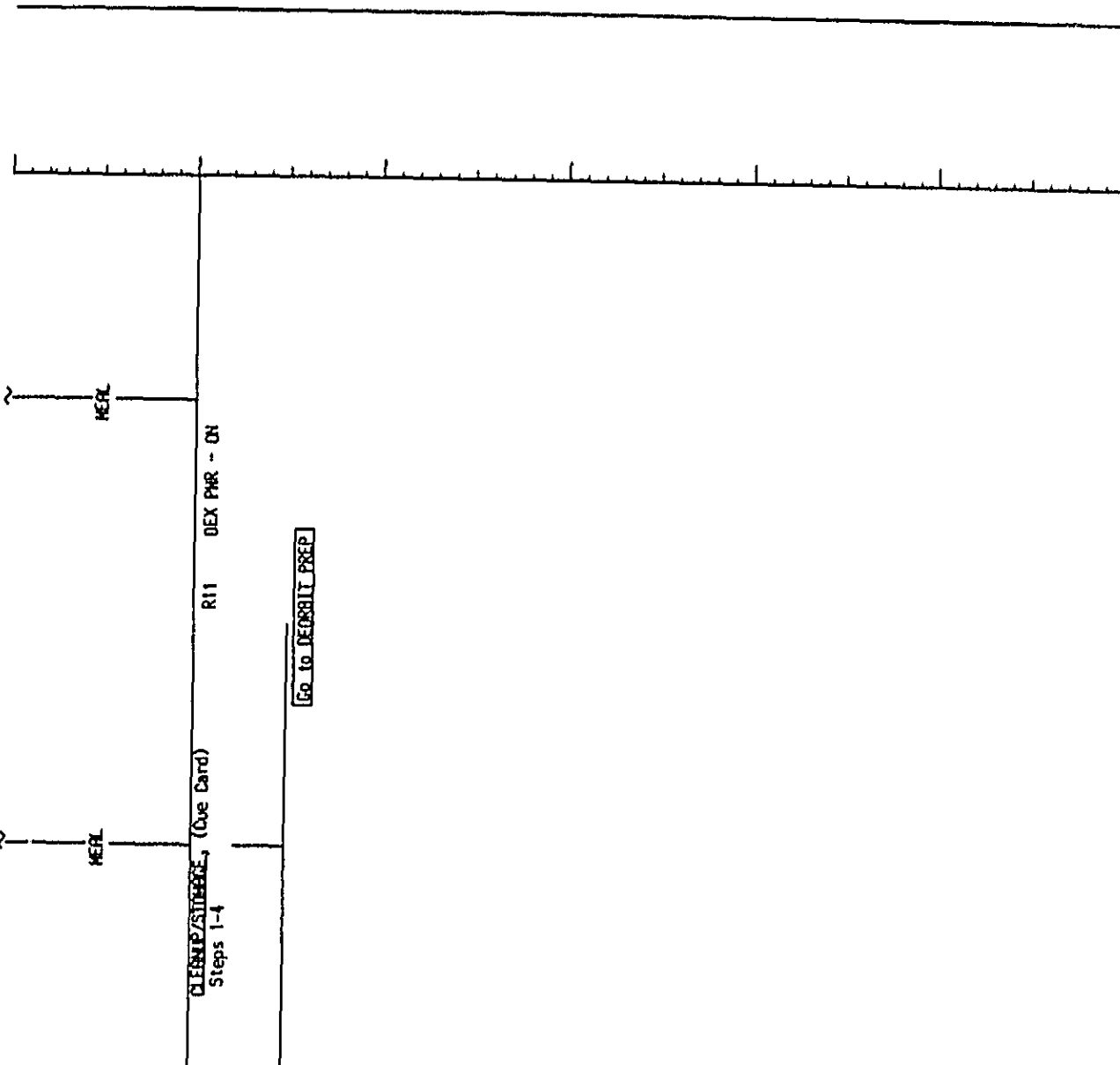
NET 0600
CM 0700
R 0800
S 0900

NOTES

MCC

PLT

CDR



ORIGINAL PAGE 13
OF POOR QUALITY

24 HOURS AFTER EXTENSION DAY

The 24 Hours After Extension Day Timeline is designed to follow a Deorbit Prep Backout on Flight Day 9. It therefore assumes that the nominal timeline plus an extra day have already been accomplished.

Detailed timeline pages are provided from MET 7/22:00 until time for the Deorbit Prep.

To compute the MET time at which this timeline is entered, take the Deorbit Burn TIG time and add ~1 hr 50 min for Deorbit Prep Backout. Note that no activities are scheduled for the first hour and 15 minutes to allow extra time for reconfiguration or troubleshooting.

24 HRS AFTER
EXTENSION DAY

24 HRS AFTER
EXTENSION DAY

GMT	(D·H·M)	MET	(D·H·M)	CDI	(D·H·M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
186	03:00/186:15:00	007:12:00/008:00:00	185:22:00/186:00:00	185:00:00/185:00:00	22.7				JULY 5, 1982	STS-4	FINAL	5/14/82

GMT	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
FD	18														
MET	007 12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
CDR	<div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div>														
PLT	<div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div> <div>EXT MSH CAP</div>														
DAY/NIGHT	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
MOON UP/DOWN	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
EARTH TRACE V/SAA	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
STDM COVERAGE	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
SOLS COVERAGE	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
DEGRD KSC EDV	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
ATTITUDE	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
MANEUVERS	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
TV/YTR	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
GFES	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
HLR	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														
NOTES:	<div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div> <div>ORBIT</div>														

ORIGINAL PAGE 13
OF POOR QUALITY

5/14/82 S184711

5-94

CMT	(D:H:M)	MET	(D:H:M)	CDT	(D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
186:17:00/	187:05:00	008:00:00/	008:12:00	186:12:00/	187:00:00	9 / 186	CDI 11.0		JULY 5, 1982	STS-4	FINAL	5/14/82
<p>GMT : 186 17 FD : 9 NET : 008 0</p> <p>18 19 20 21 22 23 24 25 26 27 28 29 30 31 OCT 187</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 NOV 187</p>												
CDR	SLEEP											
PLT	SLEEP											
DAY/NIGHT												
ORBIT												
RIM UP/DWN												
EARTH TRACE W/SRA												
CSTDN COVERAGE												
SCLS COVERAGE												
OPS DEORB KSC EDN												
ATTITUDE												
MANEUVERS TV/VTR CFES MLR												
NOTES:												

GMT (D:H:M)		MET (D:H:M)		COT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
187:05:00/ 187:17:00		008:12:00/ 009:00:00		187:00:00/ 187:12:00		10/ 187		12.7				JULY 6, 1982		STS-4		FINAL		5/14/82	
CMT : 187 5		6		7		8		9		10		11		12		13		14	
FD : 9		13		14		15		16		17		18		19		20		21	
MET : 008 12		13		14		15		16		17		18		19		20		21	
CDR		SLEEP		POST SLEEP/PTR MSG REVIEW		SLEEP		POST SLEEP/PTR MSG REVIEW		SLEEP		POST SLEEP/PTR MSG REVIEW		SLEEP		POST SLEEP/PTR MSG REVIEW		SLEEP	
PLT		SLEEP		POST SLEEP/PTR MSG REVIEW		SLEEP		POST SLEEP/PTR MSG REVIEW		SLEEP		POST SLEEP/PTR MSG REVIEW		SLEEP		POST SLEEP/PTR MSG REVIEW		SLEEP	
DAY/NIGHT		ORBIT		136		137		138		139		140		141		142		143	
EARTH TRACE W/SAR		136		137		138		139		140		141		142		143		144	
CSTON COVERAGE		-DOR		-DOR		-DOR		-DOR		-DOR		-DOR		-DOR		-DOR		-DOR	
SGLS COVERAGE		-DOR		-DOR		-DOR		-DOR		-DOR		-DOR		-DOR		-DOR		-DOR	
OPS DEGR KSC EDM		136:11		136:11		136:11		136:11		136:11		136:11		136:11		136:11		136:11	
ATTITUDE		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
MANEUVERS		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
TV/VIR		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
CFES		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
MLR		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
NOTES:																			

ORIGINAL PAGE
OF POOR QUALITY

5/14/82 SISO:IN

5-96

• ENTRY CONFIC • NO SH LIST/VER
• ENTRY CONFIC • NO SH LIST/VER

• LAST MERL CLEANUP

STS-4 DETAILED

MET ARM
DAY 007

NOTES

MCC

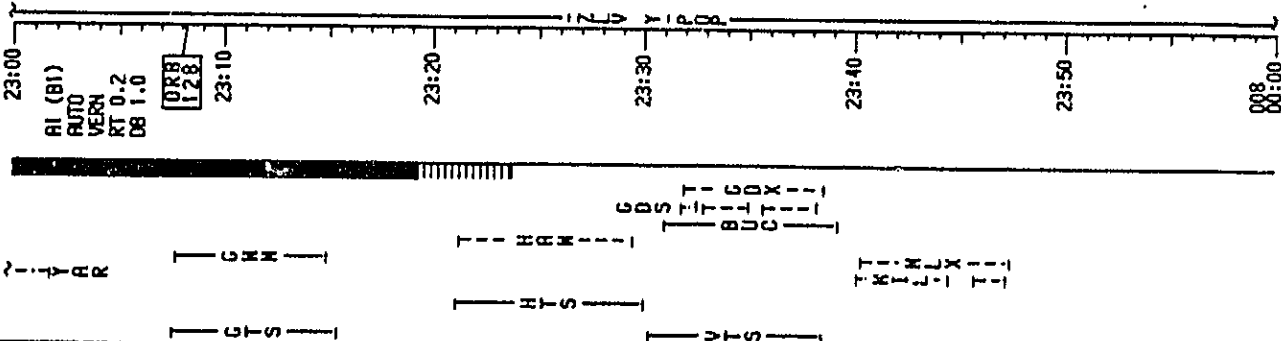
PLT

CDR

ASCENDING NODE
ORB: 128
MET: 007:23:08:11
LON: 139 1 E

ORIGINAL PAGE 18
OF POOR QUALITY

TPR
BLOCK DATA
WEATHER PRO
B-32/129-132
UPLINK
ORBITER S.V.



MET 0000
DRY 008

AI (B1)
AUTO
VERA
RT 0.2
DB 1.0

008
129

ASCENDING NODE
008: 129
MET: 008:00:38:38
LON: 116.0 E

ORIGINAL PAGE 10
OF P08R QUALITY

EXERCISE

STS-4 DETAILED
CDR

PLT

NOTES

MCC

STS-4 DETAILED

NET
DAY 008

CDR

PLT

NOTES

MCC

PRIVATE MEDICAL COMMUNICATION
(If Required)

PRIVATE MEDICAL COMMUNICATION
(If Required)

EXERCISE

MEAL PREP (Cue Card)

ORIGINAL PAGE 15
OF POOR QUALITY

If 1 REV LITE followed
by DEBBIT PREP BACKOUT,
would enter these pro-
cedures at approx 1:50

HET 08M
DAY 008

STS-4 DETAILED
CDR

PLT

NOTES

MCC

02:00 02:10 02:20 02:30 02:40 02:50 03:00

RI (B1)
AUTO
VERN
RT 0.2
DB 1.0

ORB
130

ASCENDING NODE
ORB: 130
MET: 038:02:09:05
LON: 92.9 E

ORIGINAL PAGE IS
OF POOR QUALITY

MEAL

MEAL

10S

10S

10S

10S

STS-4 DETAILED

NET
04:00
04:10
04:20
04:30
04:40
04:50
05:00

CDR

PLT

NOTES

MCC

FIRE/SMOKE DETECT/SUPPRESS TEST
(ORBIT OPS C/L, EPS)

ANNUNCIATOR C/A TAP TEST
(ORBIT OPS C/L, EPS)

MCC ONLY
COORD C/A/FOA
LIMITS CLEANUP
FOR DREN SLEEP

TPR
BLOCK DATA
WEATHER PRO
B-33/133-136

EUEL CELL PIERCE - 91111 (One Card)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ORIGINAL VALUE IN
OF POOR QUALITY

STS-4 DETAILED

KEY
DRY008

05:00
05:10
05:20
05:30
05:40
05:50
06:00

AI (BI)
AUTO
VERA
RT 0.2
DB 1.0

008
132

PLT

MCC

NOTES

PRE SLEEP ACTIVITY

PRE SLEEP ACTIVITY

SLEEP

SLEEP

UPLINK
SPC LOBO -
1ST COMM
ALERT
CNO
RDR SLEEP
CONFIG

ASCENDING NODE
ORB: 132
MET: 008:05:09:59
LON: 46.6 E

ORIGINAL PAGE 13
OF POOR QUALITY

5-104

5/14/82 STS4/FIN

STS-4 DETAILED

NET 06:00
DAY008

AI (B1)
AUTO
VERN
RT 0.2
DB 1.0

NOTES

MCC

PLT

CDR

ORIGINAL PAGE 10
OF POOR QUALITY

ASCENDING NODE
ORB: 133
MET: 008:06:40:25
LON: 23.4 E

SLEEP

SLEEP

ORB
133

STS-4 DETAILED

NET PCM
DAY008

12:00
R1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

PLT

MCC

NOTES



SLEEP

SLEEP

ASCENDING NODE
ORB: 137
MET: 008:12:42:11
LON: 69.0 N

UP LINK
SPC LOAD-
CLEAR COMM
ALERT

DM X
KARX
KDX
Z

MET
DAY 008

STS-4 DETAILED

PLT

MCC

NOTES

13:00 13:10 13:20 13:30 13:40 13:50 14:00

RI (81)
AUTO
VERN
RT 0.2
DB 1.0

SLEEP

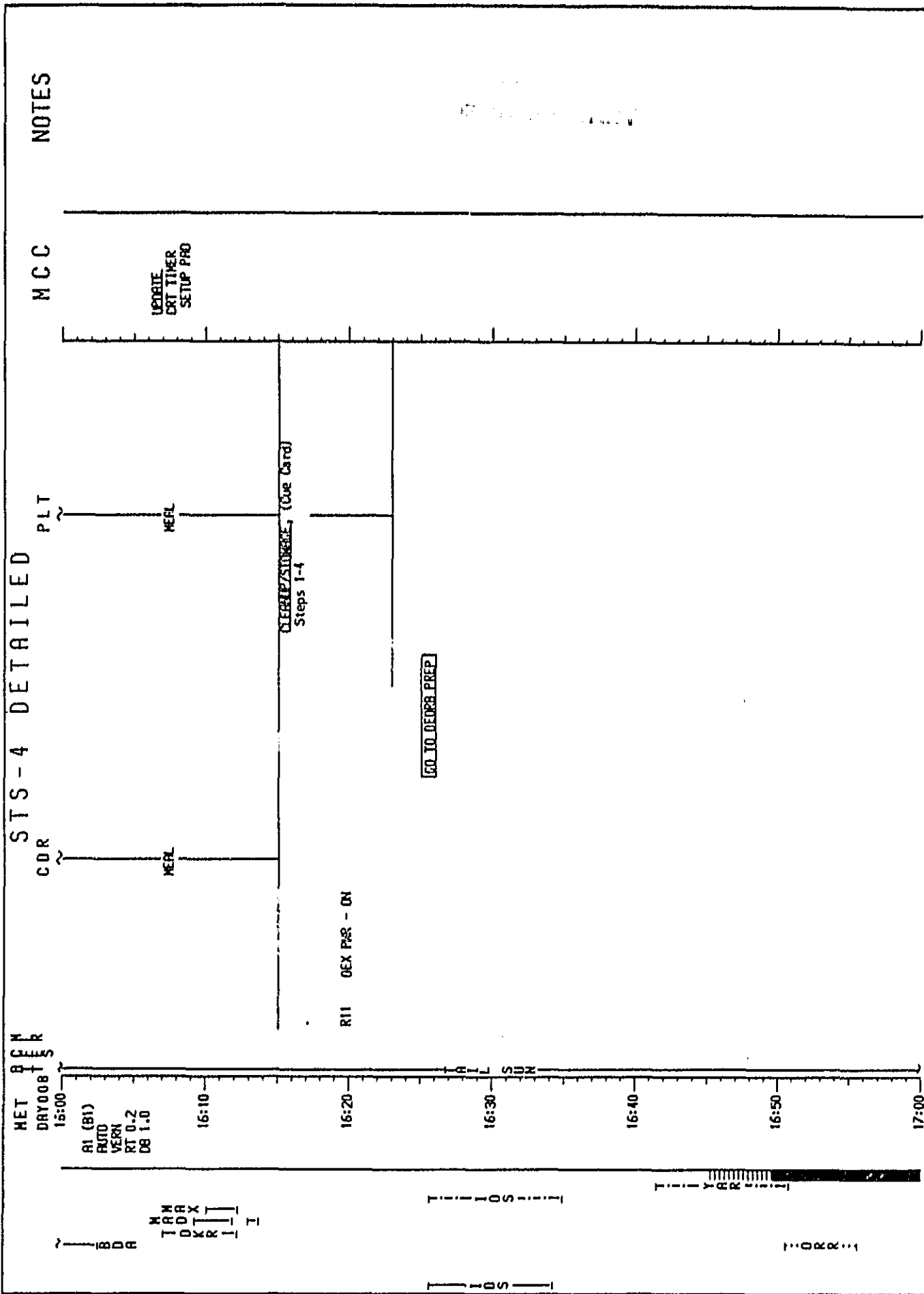
SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

ORIGINAL PAGE
OF POOR QUALITY

STS-4 DETAILED



CONSUMABLES CURVES

FWD RCS PROPELLANT & He PRES.	TBS
AFT RCS PROPELLANT & He PRES.	TBS
OMS PROPELLANT CURVE (R & L POD)	TBS
OMS He PRESSURE (R & L POD)	TBS
OMS N2 PRESSURE (R & L POD)	TBS
SUPPLY WATER	TBS
CRYO H2 CURVE	TBS
CRYO O2 CURVE	TBS

CONSUMABLES
CURVES

CREW ACTIVITY PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

FLIGHT DESCRIPTION.....	7-2
CREW.....	7-3
ORBITER SYSTEMS.....	7-3
ELECTRICAL POWER SYSTEM.....	7-3
COMMUNICATIONS AND INSTRUMENTATION.....	7-3
GUIDANCE AND NAVIGATION.....	7-4
PROPULSION.....	7-7
ENVIRONMENTAL CONTROL AND LIFE SUPPORT SUBSYSTEM.....	7-7
INTERIM TELEPRINTER SYSTEM (ITS).....	7-8
TELEVISION/PHOTOGRAPHY.....	7-8
REMOTE MANIPULATOR SYSTEM (RMS).....	7-8
PAYLOADS.....	7-9

CAP NOTES

CREW ACTIVITY PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION - MAJOR EVENTS

MISSION DURATION (day/hr:min:sec) - 6/23:37:57

<u>LAUNCH (KSC)</u>	June 27, 1982
MET (day/hr:min:sec)	0/00:00:00
Day of Year	178
CDT/GMT	10:00/15:00

<u>MECO</u>	
MET (day/hr:min:sec)	0/00:08:34.08
ORBIT ha/hp (nm)	87 x -10.3

<u>OMS-1</u>	
MET (day/hr:min:sec)	0/00:10:34
ΔV (fps)	162.
ΔT (min:sec)	01:38
ORBIT ha/hp (nm)	129.8 x 34

<u>OMS-2</u>	
MET (day/hr:min:sec)	0/00:37:39
ΔV (fps)	175
ΔT (min:sec)	01:44
ORBIT ha/hp (nm)	130.2 x 129.7

<u>OMS-3</u>	
MET (day/hr:min:sec)	0/04:29:11.6
ΔV (fps)	62.3
ΔT (min:sec)	0:36.7
ORBIT ha/hp (nm)	164.8 x 129.9

<u>OMS-4</u>	
MET (day/hr:min:sec)	0/05:14:12.5
ΔV (fps)	61.6
ΔT (min:sec)	0:36
ORBIT ha/hp (nm)	165.2 x 164.8

<u>DEORBIT</u>	
MET (day/hr:min:sec)	6/22:41:49
ΔV (fps)	315.2
ΔT (min:sec)	2:55
ORBIT ha/hp (nm)	162 x -5

<u>ENTRY INTERFACE</u>	
MET (day/hr:min:sec)	6/23:08:36

<u>LANDING (EDW)</u>	July 4, 1982
MET (day/hr:min:sec)	6/23:37:57
Day of year	185
CDT	09:24

B. CREW

1. Crew designations and responsibilities

- a. Commander (CDR): Prime crewman for launch, entry, aborts and contingency EVA. Responsible for overall command of the vehicle including the safety of both vehicle and crew.
 - b. Pilot (PLT): Prime crewman for RMS operations and CFES activities. Responsible for on-orbit management of STS.
2. A typical crew day will be that specified in the STS Work Day Handbook (Ref. 3). The daily on-orbit STS activities and their scheduling constraints are identified in the referenced document.
 3. The crew will wear Emergency Ejection Suits (EES) from launch through post-insertion and will don them again for entry. Whenever the EES is worn, OBS sensors are also worn. During the rest of the flight, in-flight garments are worn.
 4. For crew sleep periods, the middeck and flight deck speaker boxes will be configured for air-to-ground voice and C&W tones. A level check of the speaker boxes is performed prior to the first sleep period. During sleep the WCCUs will be turned off and stowed.

C. ORBITER SYSTEMS

1. Electrical Power System

- a. A crew-initiated automatic purge of the fuel cells will be scheduled approximately every 12 hours.
- b. The fuel cell purge schedule is shown in Table 9-1.

2. Communications and Instrumentation

- a. The Operational Instrumentation (OI) system will be managed from the ground through uplink commands coordinated with the crew. Exceptions to this would be the result of contingencies. Real-time OI data will be transmitted to MCC during each ground station pass via the S-Band PM downlink. In parallel with this, one of the two operations recorders will dump recorded OI data at a 5-to-1 or 8-to-1 playback-to-record ratio (depending upon whether or not voice is included in the recorded data). One OI recorder will be recording at all times, and the other will dump at every station pass via the S-Band FM downlink. Video downlink causes an exception to this recorder dump plan, but only during the station passes where TV is scheduled as a crew activity.

- b. The Development Flight Instrumentation (DFI) system will be crew controlled. The Wideband Ascent Recorder is not used on orbit. The PCM Recorder will be operated during the entire mission in one of three modes: CONTINUOUS RECORD, HI SAMPLE (a 10 second snapshot of data every 5 minutes) and LO SAMPLE (a 10 second snapshot of data every 10 minutes). The Wideband Mission Recorder will be operated in the continuous record mode with all tracks recording in parallel during OMS and RCS burns and as required for FTOs or FSOs. DFI data will be downlinked every ground station pass via a separate S-Band DFI FM downlink. This data will be recorded at the ground station for post-flight shipment to MCC. Recorded DFI data will not be dumped to ground stations during on-orbit operations.
- c. There are thirteen (13) GSTDN sites for on-orbit coverage: ORR, BUC, GDS, MIL, BDA, HAW, GWM, AGO, ACN, MAD, YAR, DKR, and BOT, and one (1) SGLS site, IOS. The BUC site does not support data dumps via S-band FM downlink. The IOS site will normally only support S-band PM downlink and down voice for this flight. The site will normally be supporting DOD requirements, but can be configured real time if required to support S-band up voice, PM uplink and FM downlink.
- d. Three (3) GSTDN sites can be used for real-time TV: GDS, MIL, and HAW.
- e. Nine (9) GSTDN sites and one (1) SGLS site have UHF voice capability: GDS, MIL, BDA, HAW, GWM, ACN, BUC, MAD, DKR, and IOS.
- f. Two (2) sites have only UHF voice capability: YAR, and BOT.
- g. There are five (5) SGLS sites available for on-orbit coverage: GTS, HTS, NHS, VTS, and IOS. IOS is the only site with voice capability and there is only voice via UHF while supporting DOD requirements.

3. Guidance and Navigation

- a. The Orbiter state vector is uplinked about once every three orbits.
- b. IMU alignments will be routinely scheduled approximately every twelve (12) hours.
- c. Both star trackers are left on continuously except for special tests. A self-test of the star tracker will be performed once a day, normally just prior to the IMU alignment scheduled after the sleep periods.

d. Each IMU will be aligned with different REFSMMATs to provide skewed platforms for enhancement of redundancy management at launch and entry. The launch REFSMMATs have a square root of five skewing and the preferred skew for entry is a square root of six. The REFSMMATs will be changed for entry normally at about 00/03:35 MET. In order to simplify recovery procedures for some contingency cases, one of the IMUs will have the same REFSMMAT for launch and entry. For the case where an IMU fails prior to the switch to the square root of six REFSMMATs, the IMU REFSMMATs, for entry, will be changed to a square root of two skewing to enhance the redundancy management during entry.

e. The on-orbit avionics configuration for STS-4 is listed below. GPC 3 (freeze dried) and GPC 5 (BFS) will be turned off at -0/01:00 MET.

GPCs - 2 RUN (1 GNC, 1 SM), 2 OFF, 1 INTERMITTENT (GNC)
IMUs - 3 OPERATE
STAR TRACKERS - 2 ON
MASS MEMORY UNITS - 2 ON
FLIGHT CRITICAL MDMs - 8 ON

f. The ADI RELMATs provide a means to change the reference system for presenting vehicle attitudes to the crew without having to reposition the IMU platforms. The RELMATs support specific flight phase requirements and are defined as listed below.

1) ASCENT (OPS 1 and 6)

'INRTL' Position:

This RELMAT will provide a +X sense ADI ball reading of roll 0°, pitch 0°, and yaw 0° when the vehicle is pointed at 0° Right Ascension, 0° Declination and the vehicle +Y axis is pointed at the celestial North Pole.

'REF' Position:

This will be a pad-oriented inertial RELMAT with the vehicle +X axis downrange along the first stage launch azimuth and the +Z towards the center of the earth along the launch pad radius vector at the time of lift off. This provides a +X sense ADI ball reading of roll 55.3° (launch azimuth), pitch 90°, and yaw 0° at liftoff.

'LVLH' Position:

This RELMAT will provide for an unbiased LVLH frame in major modes 104, 105, and 106 (i.e., the bias matrix will be an identity matrix). In major modes 101, 102, 103 and 601, the LVIY reference frame will be used.

2) ON-ORBIT (OPS 2 and 8)

'INRTL' Position:

This RELMAT will provide a +X sense ADI ball reading of roll 0^0 , pitch 0^0 , and yaw 0^0 when the vehicle +X axis is pointed at 0^0 Right Ascension, 0^0 Declination and the vehicle +Y axis is pointed at the celestial pole.

'REF' Position:

This RELMAT will provide a +X sense ADI ball reading of roll 0^0 , pitch 0^0 , and yaw 0^0 when the vehicle +X axis is in the direction of the velocity vector and the +Z axis is directed radially down to the center of the earth at the orbital noon time which is closest to the midway MET between TIG for nominal OMS-2 and TIG for nominal deorbit burn.

'LVLH' Position:

This RELMAT will provide for an unbiased LVLH frame (i.e., the bias matrix will be an identity matrix).

3) ENTRY (OPS 3)

'INRTL' Position:

This RELMAT will provide a +X sense ADI ball reading of roll 0^0 , pitch 0^0 , and yaw 0^0 when the vehicle is pointed at 0^0 Right Ascension, 0^0 Declination and the vehicle +Y axis is pointed at the celestial North Pole.

'REF' Position:

Same as 'INRTL' position.

'LVLH' Position:

Unbiased.

- g. The OPS-2 I-loaded DAP configuration is currently planned to be:

	DAP A	DAP B
Translation Pulse	0.1	0.02
Rotation Discrete Rate - NORM	0.20/sec	0.50/sec
- VERNIERS	0.20/sec	0.20/sec
Rotation Pulse - NORM	0.1	0.04
- VERNIERS	0.01	0.002
Rotation Compensation - NORM	0.0	0.0
- VERNIERS	0.0	0.0
Attitude Deadband (R,P,Y axis)		
- NORM	5.00	3.00
- VERNIERS	1.00	1.00
Rate Deadband - NORM	0.20/sec	0.20/sec
- VERNIERS	0.020/sec	0.020/sec
Jet Opt Pitch	1	1
Yaw	1	1
Cntl Accel	0	0

- h. The OPS-3 Transition DAP configuration is:

Rotation Discrete Rate	0.20/sec
Attitude Deadband	3.50
Rate Deadband	0.30/sec

4. Propulsion

The major burns maneuver schedule for STS-4 is identified in Section 7.A, FLIGHT DESCRIPTION - MAJOR EVENTS.

5. Environmental Control and Life Support Subsystem (ECLS)

- The CO₂ absorbers are not installed for launch or entry. Both canisters are initially installed at approximately 0/05:20 MET and are then alternately replaced with new canisters within the required frequency of approximately every 24 hours. The canisters are both removed approximately 4 hours prior to the deorbit burn ignition during the deorbit preparations on entry day. The installation/replacement schedule is shown in Table 9-3.
- The waste water tank will be loaded to 40% at launch, with sufficient ullage volume to accommodate waste water accumulation during the flight. The tank will be as full as feasible at the planned end of the mission.
- The supply water tanks will be sufficiently loaded at launch so that planned launch day deorbit opportunities can be supported through the use of combined supply and waste water, without opening the payload bay doors. Thus all tanks will be full at launch except Tank A which will be 45% full. This allows sufficient ullage to handle fuel cell water production during the ascent phase. Potential supply water dumps are scheduled approximately every 12 hours in the Crew Activity Plan which may or may not be required. A real-time call will be made prior to each

scheduled dump to inform the crew if a dump is required and to what level. Tanks A & B will be dumped to a level that will allow the tanks to be full prior to the next daily group of EDW deorbit opportunities. The supply water dump schedule is shown in Table 9-2.

D. INTERIM TELEPRINTER SYSTEM (ITS)

1. The Interim Teleprinter System (ITS) will be used for STS-4. The system will provide an on-orbit capability to receive and reproduce text data (such as procedures and CAP updates or changes) from the MCC during routine and off-nominal situations.
2. The teleprinter is located on the middeck in a standard flight locker (MA9F) adjacent to Avionics Bay 3A. Foam insulation inside the locker is used to reduce the noise from the teleprinter during operation.

E. TELEVISION/PHOTOGRAPHY

1. The Closed Circuit Television (CCTV) system will be used for STS-4. This system provides two cameras for in-cabin coverage and two RMS and four payload bay TV cameras for coverage of payload bay activities. The system, after activation, can be managed by ground commands during live coverage passes. For TV coverage outside of STDN coverage, the crew must manage the CCTV system.
2. There is a video tape recorder (VTR) available to record video during periods when there is no STDN coverage. The video is recorded on 30-minute cassettes and will normally not be dumped to the ground. Recorded video can be dumped to the ground if desired since the VTR output (dump) currently is hooked to the PL1 video input, allowing recorded video to be played back into the Orbiter communication system as if it were a PL1 (Spacelab) TV camera input. VTR management must be performed by the crew.
3. 16mm, 35mm, and 70mm camera systems are available.

F. REMOTE MANIPULATOR SYSTEM (RMS)

1. OMS/RCS CONSTRAINTS

- a. VRCS - No constraints during RMS OPS
- b. PRCS - Constraints during Loaded and Unloaded RMS OPS:
 1. Usage not permitted under the following conditions:
 - a. RMS JOINT in a Singularity
 - b. RMS at a Reach Limit
 - c. RMS in Test Mode
 - d. During EE OPS
 - e. Loaded RMS/PRCS Interaction Test will be NO GO for Failed VRCS.
 2. Must be on Tail Only Jets with a 30 deadband when on AUTO DAP.

- c. OMS - Usage not permitted with RMS uncradled or attached to a berthed Payload.
- 2. No part of the RMS shall be positioned within the following distances of an RCS Thruster:
 - a. PRCS - 15 ft
 - b. VRCS - 3 ft
- 3. No part of the RMS/Payload/End Effector will be maneuvered outside the Crew/CCTV field of view, unless the joint angles and sequence to be maneuvered have been verified as acceptable.

G. PAYLOADS

1. IECM (Induced Environmental Contamination Monitor)

The crew will be required to operate the IECM switch on Panel R11 four times during the flight. These switch operations, which mode the IECM mass spectrometer, are performed after payload bay door openings, for plume impingement, contamination mapping, and gas release maneuver FTOs, per the STS-4 Flight Requirements Document (Ref. 1). The IECM mass spectrometer must be turned off when the payload bay doors are closed to prevent damage to the mass spectrometer by pressure buildup in the payload bay.

2. MLR (Monodisperse Latex Reactor)

The MLR is activated via a single switch prior to the first crew sleep period and runs continuously for 19.5 hours. The experiment occupies the space of three middeck lockers.

3. CFES (Continuous Flow Electrophoresis System)

The CFES provides a processing system which can segregate biological samples using a separation process based on the relative motion of charged particles through an electric field (electrophoresis). For STS-4, the crew will be required to operate the payload twice during the early portion of the flight. Each operating period lasts approximately eight hours. The PLT has been designated as the prime crewman for CFES operations. The CFES payload is located on the Orbiter middeck. A low acceleration level is desired during CFES operations.

4. GAS (Get-Away Special)

The GAS payload is a self-contained experiment package that requires minimal crew activity. After the crew is given approval for orbit operations, the crew unstows a handheld controller and activates the payload. Once activated, an internal controller sequentially initiates the biological, materials processing, and physical science experiments at the appropriate time. The experiments do not require any special attitudes during their operation. Deactivation and stowing of the handheld controller occur before deorbit preparation.

5. NOSL (Night/Day Optical Survey of Thunderstorm Lightning)

The NOSL experiment is performed in the Orbiter cabin. The experiment requires crew operations for unstowing and setting up in the aft flight deck, for on-orbit operations using targets of opportunity, and for stowage. A -ZLV attitude is desired for taking data.

ON-ORBIT CREW ACTIVITY
FUNCTIONAL TEST OBJECTIVES (FTOs),
FUNCTIONAL SUPPLEMENTARY OBJECTIVES (FSOs)

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FTOs/FSOs

INTRODUCTION

The following Table describes the scheduling data and rationale for on-orbit crew activity related FT0s/FS0s for STS-4. The current FRD (Ref. 1) was used for compiling this table.

FT0s/FS0s

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
401-01	Ascent Performance Data Collection	N/A	No crew interaction required except for DFI recorder configurations
402-01	SRB Performance Data Collection		
403-01	On-Orbit Performance Data Collection		
404-01	Entry/Approach and Landing Performance Data		
411-01	Structural Conditioning	PTC initiated at 06/04:52	Ground will provide go/no-go for crew thermal conditioning
412-01	Attitude Hold Thermal Response	1/07:49 - 1/19:12 1/23:18 - 4/18:18 4/19:24 - 6/04:32 6/04:52 - 6/16:02	PTC -XSI (Tail To Sun) +ZSI (Bottom to Sun) PTC
412-02	Startracker Coldsoak Thermal Response	2/04:15 - 2/18:54 2/18:54	Both startrackers powered off Both startrackers powered on Both startrackers powered off for ~12 hours followed by ~12 hours of both startrackers powered on. A startracker self-test and a normal IMU alignment will be performed between the two periods

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
412-03	Supply Water Dump Line and Nozzle Thermal Response		Has been deleted
412-04	Waste Water Dump Line and Nozzle Thermal Response		Has been deleted
412-05	FRCS Thermal Soakback, One Forward Engine	4/15:40 - 5/00:10	Performed after 20 hours of -XSI or anytime after start of -XSI. Inhibit 3 FRCS engines for 5 hours; fire F3F for 30 seconds; inhibit all 3 engines for 5 hours
412-06	FRCS Thermal Soakback, Two Forward Engines	5/22:41 - 6/04:24	Performed no earlier than 20 hours after initiation of -XSI thermal test period. Requires inhibiting 3 FRCS engines for 5 hours, subsequent firing of 2 of the 3 engines for 30 seconds, and a final 5-hour period of inhibiting of all 3 engines prior to return to normal operations.
412-07	FRCS Thermal Soakback, Pulse Mode	3/16:00 - 4/02:50	Performed after 20 hours in either -XSI or +ZSI; inhibit 3 FRCS engines for 5 hours; perform five 30-second firings of F3F (each firing separated by 30 minutes); inhibit all 3 engines for 5 hours
412-08	ARCS Thermal Soakback, One Aft Engine	5/22:41 - 6/04:24	Performed after 20 hours of +ZSI; inhibit aft firing PRCS engines and VRCS engines in port pod; fire L1A for 100 seconds; inhibit engines involved for 5 hours

C-4

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
413-01	ET Passive Ablation Sensor Target Photography	8 seconds after ET SEP	
421-01	Early Entry Roll Characteristics	Q = 22.0 psf	
421-02	Aerothermodynamics/ Performance	V = 21,000 fps	
421-03	Aerothermodynamics/ Performance	V = 18,000 fps	
421-04	Aerothermodynamics/ Performance	V = 14,000 fps	
421-05	Aerothermodynamics/ Performance	V = 8,400 fps	
421-06	Supersonic Lateral Trim	M = 3.2	
421-07	Transonic Lateral/ Directional Stability		Has been deleted
421-08	Wing and Tail Excitation (Structural PTI)	M = 2.2	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTG's/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
431-01	Window Observation and Reporting		Has been deleted
432-01	Ascent Wing and Tail Excitation	V = 460 fps	
433-01	Payload Bay Liner Performance	0/02:55	
434-01	Flight Debris Investigation	0/02:57	
441-01 441-02	Vacuum Inerting Inerting Verification	Between OMS 1&2 0/05:20 - 0/05:52	The inerting is terminated prior to the OMS-2 burn Between 6 and 12 hours after completion of FTO 441-01
442-01	Simulated OMS Engine Failure (OMS-3)		Has been deleted
444-01	Hydraulic System Warm-up	During FCS C/O on FD5	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
445-01	PRSD Stratification Test, 85% Level	Not Scheduled	Provide cryo supply with 15% density to all 3 FCPs. Configure electrical loads for 19.3 kW split among 3 FCPs and maintain for 2 hours. Plus and then minus pitch maneuvers of 175° at 1°/sec performed
445-02	PRSD Stratification Test, 50% Level	Not Scheduled	
445-03	PRSD Stratification Test, 15% Level	5/22:20 - 5/22:30	
451-01	PLBD Initial Alignment Test		Has been deleted
451-02	PLBD Final Alignment Test		Has been deleted
451-03	PLBD Cold Case Performance	4/16:50 - 4/18:10	Performed as near the end of the -XSI thermal test period as practicable based on operational requirements. Theodolite must be installed. Calibration sightings required during initial PLBD operations
451-04	PLBD Thermal Gradient Performance	6/00:50 - 6/02:10	Performed as near the end of the +ZSI thermal test period as practicable based on operational requirements

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
452-01	RMS Software Stop Performance		Has been deleted
452-02	Singularity Management	5/02:00 - 5/02:35	
452-03	Unloaded Arm Response to PRCS	5/01:18 - 5/01:58	
453-01	Contamination Mapping	1/20:20 - 1/22:50	IECM limited to 4 hours of operations after switching to internal battery power
454-01	RCS Plume Flow Field Measurement	2/01:10 - 2/03:10	IECM limited to 4 hours of operations after switching to internal battery power
455-01	Payload Deployment and Berthing Performance	1/20:10 - 1/23:15 2/01:00 - 2/03:30	
455-02	RMS/PRCS Interactions	Shopping List Item	
461-01	Whole Gas Samples	6/03:20	No crew interaction required
461-03	ATCO Performance Evaluation	N/A	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FT0s/FS0s

FT0 NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
462-01	Radiator Coating Bond Verification	5/00:48 - 5/01:18	
466-01	Radiator Performance Test	0/02:20 - 0/08:00 1/06:55 - 1/23:25 2/20:05 - 2/22:54 5/20:20 - 6/01:30	Desired to perform this test during the following attitudes: -ZLV; -ZSI; -XSI or +XSI; PTC; +ZSI; Gravity Gradient
467-01	VPC Freezer Heat Exchanger Dynamics	0/23:50 - 1/07:50	Freezer should have been off at least six (6) hours
467-02	Long Term VPC Freezer Temperature Stability	1/23:45 - 1/23:50 3/02:15 - 3/02:20 4/05:30 - 4/05:35 5/05:35 - 5/05:40 5/22:55 - 5/23:00	
467-03	Sample Freezing Storing and Return	1/07:50 - 1/07:56	FT0 467-01 must be accomplished before this FT0
471-01	S-Band and UHF Antenna Patterns	6/05:20 - 6/05:40	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
472-01	Autoland Controlled Approach	N/A	
472-02	Crosswind Landing Performance	N/A	
473-01	Startracker Operation During Water Dumps	1/07:23 - 1/07:43	Daylight required
473-03	Forward Station COAS Calibration	0/08:24 - 0/08:29	
474-01	Navigation Base Stability	1/19:31 - 1/19:50 4/18:30 - 4/18:50	
475-01	Cold Case CCTV Evaluation, Non-Operating		Has been deleted
475-02	Cold Case CCTV Evaluation, Operating		Has been deleted
476-01	Backup Orbital Navigation	3/04:19 - 3/04:37 5/18:14 - 5/18:34 5/19:42 - 5/20:04	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOS/FSOs

FTO/FSO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
477-01	PRCS Narrow Deadband Attitude Hold Performance	3/23:20 - 3/23:25	
477-02	Passive Gravity Gradient Attitude Hold	0/06:05 - 0/07:56 0/19:15 - 1/06:52	
479-01	On-Orbit TACAN Nav Aid Capability	2/19:35 - 3/00:37 3/23:40 - 4:00:10 4/00:53 - 4/02:43	
S401-01	Tile Gap Heating Data Collection	N/A	
S402-01	Catalytic Surface Effects Data Collection	N/A	
S403-01	Dynamic, Acoustic and Thermal Environment Data	N/A	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

F50 NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
S431-01	IECM Operation	Post Insertion 4/23:05 - 4/23:50 Deorbit Prep	IECM switch is in POS 2 at launch; at four (4) defined times during the flight, the crew places the IECM switch in POS 1 position for 30 ±5 seconds and then back to POS 2 position
S432-01	Infrared Imagery of Shuttle	N/A	
S433-01	Prelaunch and Ascent ACIP Data Operation	Prelaunch & Ascent	Gravity gradient required
S433-02	Quiescent On-Orbit Data Collection	1/03:18 - 1/03:24	
S433-03	Deorbit Through Landing ACIP Data Collection	Deorbit and Entry	
S434-01	Deploy Radiation Dosimeter Pouches	N/A	
S434-02	Stow Radiation Dosimeter Pouches	N/A	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FT0s/FS0s

FS0 NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
S435-01	GAS Operation	0/05:25 - 6/00:00	
S436-01	CFES Operation	0/20:25 - 1/04:15 2/19:45 - 3/04:09	Experiment run #1 Experiment run #2
S441-01	NOSL Operations	0/21:50 - 6/05:05	
S442-01	MLR Operation	0/06:30 - 1/02:15	Low acceleration level desired for 19.5 hours
S443-01	In-flight Motion Sickness Data Collection	0/08:45 1/08:15 2/07:25 3/06:15 4/05:55 5/05:55 6/05:55	
S491-01	Crew Activities TV	1/01:24 - 1/01:32 3/01:40 - 3/02:10 3/19:15 - 3/19:25 4/22:51 - 4/23:00 5/20:07 - 5/20:16	Group 2

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOS/FSOs

FSO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
S491-02	IECM Handling Demonstration TV	2/01:10 - 2/03:10	Group 2
S491-03	Activities of Opportunity TV	TBD	Group 2
S491-04	TV of the CDR	3/19:15 - 3/19:25	Group 1
S491-05	TV of the PLT	1/01:24 - 1/01:32 3/01:40 - 3/02:10 4/22:51 - 4/23:00 5/20:07 - 5/20:16	Group 1
S492-01	Launch Photography (16mm)	Ascent	Group 1
S492-02	Crew Activities (16mm)	1/01:50 - 1/04:15 2/02:38 - 2/21:25 4/00:11 - 4/00:16 4/01:30 - 4/02:12 4/16:50 - 4/18:10	Group 2
S492-03	Payload Bay Photography (16mm)	1/20:20 - 1/22:55	Group 1, associated with RMS/IECM OPS
S492-04	Unscheduled Photography (16mm)	TBD	Group 2

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOS/FSOs

FSO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
S492-05	Approach and Landing Photography (16mm)	Entry	Group 1
S492-06	Photography of the CDR (16mm)	2/20:38 - 2/21:25	Group 2
S492-07	Photography of the PLT (16mm)	4/00:11 - 4/00:16	Group 2
S493-01	Crew Activity Photography (35mm)	TBD	Group 2
S493-02	Payload Bay Photography (35mm)	TBD	Group 2
S493-03	On-Orbit Photography (35mm)	TBD	Group 2
S493-04	Still Photography of the CDR (35mm)	TBD	
S493-05	Still Photography of the PLT (35mm)	TBD	

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TABLE 9-1
ORBITER FUEL CELL PURGES

APPROX MET (D/HH:MM)	FUEL CELL PURGE	
	NO.	Δt (HH:MM)
Post-Ins (0/02:52)	1	
0/08:40	2	04:48
0/18:30	3	09:50
1/08:10	4	13:40
1/18:00	5	09:50
2/07:15	6	13:15
2/17:15	7	10:00
3/06:05	8	12:50
3/16:10	9	10:05
4/05:50	10	13:40
4/15:40	11	09:50
5/05:50	12	14:10
5/15:45	13	09:55
6/05:50	14	14:05
6/16:20	15	10:30
Deorbit Prep (6/20:33)	16	05:53

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TABLE 9-2
ORBITER WATER DUMPS (SUPPLY)

APPROX MET (D/HH:MM)	SUPPLY H2O	
	NO.	Δt (HH:MM)
0/07:44	1	
0/17:55	2	10:11
1/07:24	3	13:29
1/18:00	4	10:36
2/05:50	5	11:50
2/17:10	6	11:20
3/04:45	7	11:35
3/16:05	8	11:20
4/03:05	9	11:00
4/19:05	10	16:00
5/03:10	11	08:05
5/15:55	12	12:45
6/02:10	13	10:15
6/16:25	14	14:15

TABLE 9-3
CO2 ABSORBER REPLACEMENT

APPROX MET (D/HH:MM)	CO2 ABSORBER REPLACEMENT			
	ABSORBER NO.	POSITION	POSITION A Δt (HH:MM)	POSITION B Δt (HH:MM)
* 0/05:20	1 & 2	A & B		
** 0/08:35	3	A	03:15	
1/08:10	4	B		26:50
2/07:20	5	A	46:45	
3/06:00	6	B		45:50
4/05:35	7	A	46:15	
5/05:40	8	B		47:40
6/05:40	9	A	48:05	
***6/17:50			13:50	37:15

*INITIAL INSTALLATION OF BOTH CO2 ABSORBERS

**CO2 ABSORBER NO 1 IS REWRAPPED AND SAVED FOR CONTINGENCY

***BOTH CO2 ABSORBERS REMOVED FOR ENTRY

TABLE 9-4
CRYO MANAGEMENT

	MET	O2/H2 TANK HTRS SWITCH CONFIGURATION
POST INSERTION	0/03:00 (STATUS AS OF)	O2 TK1 & 2 HTRS A,B (four) - AUTO H2 TK1 & 2 HTRS A,B (four) - AUTO O2 TK3 HTRS (two) - AUTO H2 TK3 HTRS (two) - AUTO O2 TK4 HTRS (two) - OFF H2 TK4 HTRS (two) - OFF
PREP (PRSD TEST)	5/15:50	O2 TK1,2,3,4 HTRS (all) - OFF H2 TK1,2,3,4 HTRS (all) - OFF
POWERUP (PRSD TEST)	5/19:53	O2,H2 TK4 HTRS A (two) - AUTO
PERFORMANCE (PRSD TEST)	5/22:20	
POST (PRSD TEST)	5/22:35	O2 TK1 & 2 HTRS A (two) - AUTO H2 TK1 & 2 HTRS A,B (four) - AUTO O2,H2 TK3 HTRS A (two) - AUTO O2,H2 TK4 HTRS A (two) - OFF

TABLE 9-5 - DFI WIDEBAND ASCENT RECORDER USAGE

APPROX MET (DD/HH:MM:SS)	MODE	PWR	Δt USAGE (MM:SS)	ACCUM USAGE (MM:SS)	TAPE REMAINING (MM:SS)	P*
~-00/00:05:30	CONT	ON	--	00:00	32:00	T
00/00:13:00	STBY	ON	18:30	18:30	13:30	B
00/00:35:00	CONT	ON	00:00	18:30	13:30	S
00/00:39:00	STBY	ON	04:00	22:30	9:30	
00/01:05:00	STBY	OFF	04:00	22:30	9:30	

*Data Priority based from IQ down to 1 (OI Data is 10)

TABLE 9-6 - DFI WIDE BAND MISSION RECORDER USAGE

APPROX MET (DD/HH:MM)	MODE	PWR	Δt USAGE (MM:SS)	ACCUM USAGE (HH:MM:SS)	TAPE REMAINING (HH:MM:SS)	REASON	P*
-00/00:06	CONT	ON	--	00:00:00	02:00:00	LAUNCH THRU OMS 1	T
00/00:13	STBY	ON	19:00	00:19:00	01:41:00		B
00/00:35	CONT	ON	00:00	00:19:00		OMS 2	S
00/00:39	STBY	ON	04:00	00:23:00	01:37:00		
00/01:05	STBY	OFF					
00/04:27	CONT	ON	00:00	00:23:00		OMS 3	
00/04:31	STBY	OFF	04:00	00:27:00	01:33:00		
00/05:12	CONT	ON	00:00	00:27:00		OMS 4	
00/05:16	STBY	OFF	04:00	00:31:00	01:29:00		
01/03:16	STBY	ON	00:00	00:31:00	01:29:00		
01/03:20	CONT	ON	00:00	00:31:00	01:29:00	ACIP ON-ORBIT TEST	
01/03:21	STBY	ON	01:00	00:32:00	01:28:00		
01/03:26	STBY	OFF	00:00	00:32:00	01:28:00		
03/18:48	CONT	ON	00:00	00:31:00		F3F PULSE MODE TEST	
03/18:52	STBY	OFF	04:00	00:36:00	01:24:00		
03/19:18	CONT	ON	00:00	00:36:00		F3F PULSE MODE TEST	
03/19:22	STBY	OFF	04:00	00:40:00	01:20:00		
03/19:48	CONT	ON	00:00	00:40:00		F3F PULSE MODE TEST	
03/19:52	STBY	OFF	04:00	00:44:00	01:16:00		
03/20:18	CONT	ON	00:00	00:44:00		F3F PULSE MODE TEST	
03/20:22	STBY	OFF	04:00	00:48:00	01:12:00		
03/20:48	CONT	ON	00:00	00:48:00		F3F PULSE MODE TEST	
03/20:52	STBY	OFF	04:00	00:52:00	01:08:00		
04/19:13	CONT	ON	00:00	00:52:00		RCS TEST, 1 FWD ENG	
04/19:17	STBY	OFF	04:00	00:56:00	01:04:00		
05/22:44	CONT	ON	00:00	00:56:00		RCS TEST, 2 FWD/1 AFT ENG	

*Data Priority based from 10 down to 1 (OI Data is 10)

**Time of 2 min sample should correspond to the approximate time sleep station readings are taken

TABLE 9-5 - DFI WIDE BAND MISSION RECORDER USAGE (CONTINUED)

APPROX MET (DD/HH:MM)	MODE	PWR	Δt USAGE (MM:SS)	ACCUM USAGE (HH:MM:SS)	TAPE REMAINING (HH:MM:SS)	REASON	P*
05/22:48	STBY	OFF	04:00	01:00:00	01:00:00	WB CAL	
06/18:00	CONT	ON	00:00				
06/18:01	STBY	OFF	01:00	01:01:00	00:59:00	DEORBIT BURN	
06/22:40	CONT	ON	00:00	01:01:00			
06/22:46	STBY	OFF	06:00	01:07:00	00:53:00	EI-3 THRU ROLLOUT	
06/23:06	CONT	ON	00:00	01:07:00			
06/23:39	STBY	OFF	46:00	01:53:00	00:07:00		

*Data Priority based from 10 down to 1 (OI Data is 10)

**Time of 2 min sample should correspond to the approximate time sleep station readings are taken

TABLE 9-7 - DFI PCM RECORDER USAGE

APPROX MET (DD/HH:MM)	MODE	Δt (HH:MM)	Δt TAPE** USAGE (HH:MM:SS)	ACCUM USAGE (HH:MM:SS)	TAPE RE- MAINING (HH:MM:SS)	REASON	P*
-00/00:06	CONT	--	--	--	05:52:00	ASCENT THRU VAC INERT +5	T
00/00:23	HI SAMP	00:29	29:00	00:29:00	05:23:00	RA	B
00/00:35	CONT	00:12	00:22	00:29:22	05:22:38	OMS 2	S
00/00:39	LO SAMP	00:04	04:00	00:33:22	05:18:38		
00/01:59	CONT	01:20	01:17	00:34:39	05:17:21	PLBD OPENING	
00/02:02	LO SAMP	00:03	03:00	00:37:39	05:14:21	NOMINAL CONFIG	
00/04:27	CONT	02:25	02:34	00:40:13	05:11:47	OMS 3 BURN	
00/04:31	LO SAMP	00:04	04:00	00:44:13	05:07:47	NOMINAL CONFIG	
00/05:12	CONT	00:41	00:44	00:44:57	05:07:03	OMS 4 BURN	
00/05:16	LO SAMP	00:04	04:00	00:48:57	05:03:03	NOMINAL CONFIG	
00/05:22	CONT***	00:06	00:00	00:48:57	05:03:03	INERTING VERIFICATION	
00/05:27	HI SAMP***	00:05	05:00	00:53:57	04:58:03	INERTING VERIFICATION	
00/05:52	LO SAMP	00:25	00:44	00:54:41	04:57:19	NOMINAL CONFIG	
01/20:20	HI SAMP	38:28	41:26	01:36:07	04:15:53	IECM CONTAM MAPPING	
01/22:55	LO SAMP	02:35	05:19	01:41:26	04:10:34	NOMINAL CONFIG	
03/18:48	CONT	43:53	47:18	02:28:44	03:23:16	F3F PULSE MODE TEST	
03/19:00	HI SAMP	00:12	12:00	02:40:44	03:11:16	F3F PULSE MODE TEST	
03/19:18	CONT	00:18	00:33	02:41:17	03:10:43	F3F PULSE MODE TEST	
03/19:30	HI SAMP	00:12	12:00	02:53:17	02:58:43	F3F PULSE MODE TEST	
03/19:48	CONT	00:18	00:33	02:53:50	02:58:10	F3F PULSE MODE TEST	
03/20:00	HI SAMP	00:12	12:00	03:05:50	02:46:10	F3F PULSE MODE TEST	
03/20:18	CONT	00:18	00:33	03:06:23	02:45:37	F3F PULSE MODE TEST	
03/20:30	HI SAMP	00:12	12:00	03:18:23	02:33:37	F3F PULSE MODE TEST	

*Data Priority based from 10 to 1 (OI Data is 10)

**11 sec of tape used every 5 min 11 sec for HI SAMPLE and 10 min 11 sec for LOW SAMPLE

***If inerting verification is not required, recorder stays at LO SAMPLE

TABLE 9-7 - DFI PCM RECORDER USAGE (CONTINUED)

APPROX MET (DD/HH:MM)	MODE	Δt (HH:MM)	Δt TAPE** USAGE (HH:MM:SS)	ACCUM USAGE (HH:MM:SS)	TAPE RE- MAINING (HH:MM:SS)	REASON	P*
03/20:48	CONT	00:18	00:33	03:18:56	02:33:04	F3F PULSE MODE TEST	
03/21:00	HI SAMP	00:12	12:00	03:30:56	02:21:04	F3F PULSE MODE TEST	
04/01:43	CONT	04:43	09:54	03:40:50	02:11:10	FCS C/O	
04/01:49	LO SAMP	00:06	06:00	03:46:50	02:05:10	NOMINAL CONFIG	
04/05:50	HI SAMP	04:01	04:13	03:51:03	02:00:57	LAST 10 HRS OF -XSI	
04/19:13	CONT	13:23	28:14	04:19:17	01:32:43	RCS TEST, 1 FWD ENG	
04/19:25	HI SAMP	00:12	12:00	04:31:17	01:20:43	RCS TEST, 1 FWD ENG	
05:00:12	LO SAMP	04:47	10:05	04:41:22	01:10:38	NOMINAL CONFIG	
05:22:44	CONT	22:32	24:12	05:05:34	00:46:26	RCS TEST, 2 FWD/1 AFT ENG	
05:22:56	HI SAMP	00:12	12:00	05:17:34	00:34:26	RCS TEST, 2 FWD/1 AFT ENG	
06/04:26	LO SAMP	05:30	11:33	05:29:07	00:22:53	NOMINAL CONFIG	
06/18:31	HI SAMP	14:05	15:02	05:44:09	00:07:51	RADIATOR BYPASS/STOW RADIATORS	
06/19:20	HI SAMP	00:49			01:36:00	DFI PCM RCDR REWIND	
06/19:48	CONT		00:28			PLBD CLOSING/STRAIN GAUGE	
06/19:52	HI SAMP		00:04				
06/19:57	CONT					RADIATOR HEAT SINK	
06/20:02	HI SAMP		00:05			TIG-4 MINUTES THRU POST LANDING	
06/22:36	CONT					POST ROLLOUT	
-07/00:00	HI SAMP		01:24				

*Data Priority based from 10 to 1 (OI Data is 10)

**11 sec of tape used every 5 min 11 sec for HI SAMPLE and 10 min 11 sec for LOW SAMPLE

***If inerting verification is not required, recorder stays at LO SAMPLE

TABLE 9-8 - ATTITUDE AND EVENT TIMELINE

NET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS		DISC RATE (°/sec)	DAP			EARTH		SUN		REMARKS
		Roll	Pitch	Yaw		ATT (deg)	RATE (°/sec)		SEL	CONT	RCS	θ	φ	θ	φ	
0/00:08:34	MECO						3.5	0.3	*	AUTO	*					
0/00:08:49	ET SEP (4 fps, -Z)						3.5	0.3	*	AUTO	*					
0/00:09:30	INITIATE MANUAL MNVR TO OMS-1 BURN ATT	--	--	--	--	N/A	N/A	N/A	*	MAN ACCEL	*	--	--	--	--	
0/00:10:00	OMS-1 BURN ATT	337.2	190.5	346.5	INRTL	3.5	0.3	0.2	*	AUTO	*	69	359	99	181	
0/00:10:31.3	OMS-1 IGNITION					3.5	0.3	0.2	*	AUTO	*					162.1 fps ΔV
0/00:12:07.3	OMS-1 CUTOFF					3.5	0.3	0.2	*	AUTO	*					
0/00:13:21	MPS DUMP TERMINATED					3.5	0.3	0.2	*	AUTO	*					
0/00:20:00	INITIATE AUTO MNVR TO OMS-2 BURN ATT	--	--	--	--	3.5	0.3	0.2	*	AUTO	*					MNVR TIME = 10 MIN EIG ANG = 115
0/00:30:00	OMS-2 BURN ATT	19.1	312.6	342	INRTL	3.5	0.3	0.2	*	AUTO	*	36	16	146	356	
0/00:37:39.3	OMS-2 IGNITION					3.5	0.3	0.2	*	AUTO	*					174.8 fps ΔV
0/00:39:26.5	OMS-2 CUTOFF					3.5	0.3	0.2	*	AUTO	*					
0/00:55:00	DPS RECONFIG TO GNC 2 (OMS-2 ATT)					10.0	0.2	0.2	A	AUTO	NORM					
0/01:05:00	INITIATE -ZLV, XPOP +YBY FWD ATT MODE	--	--	--	--	10.0	0.2	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 9 MIN EIG ANG = 103
0/01:14:00	-ZLV, XPOP ATT (PLBD OPENING) (120° ROLL BIAS)	0	192	90	LVLH	10.0	0.2	0.2	A	AUTO	NORM	90	348	89	54	TGT: EARTH P 90 Y 348 OM 270
0/03:41:00	FREE DRIFT					N/A	N/A	N/A	A	MAN PULSE	VERN					
0/04:10:00	INITIATE AUTO MNVR TO OMS-3 ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	--	MNVR TIME = 11 MIN EIG ANG = 130

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEAGBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP		EARTH		SUN		REMARKS
		Roll	Pitch	Yaw		ATT	RATE		SEL	COUNT	RCS	6	6	6	
0/04:21:00	OMS-3 BURN ATT	331.6	153.4	359.3	INRTL		1.0	0.02	A	AUTO	VERN	40	0	60	181
0/04:29:11.6	OMS-3 IGNITION						3.5	0.3	A	AUTO	NORM				52.3 fps ΔV
0/04:29:48.3	OMS-3 CUTOFF						1.0	0.02	A	AUTO	VERN				
0/04:55:00	INITIATE AUTO MWVR TO OMS-4 ATT	--	--	--	--		1.0	0.02	A	AUTO	VERN	--	--	--	MWVR TIME = 15 MIN EIG ANG = 180
0/05:10:00	OMS-4 BURN ATT	28.4	333.8	1	INRTL		1.0	0.02	A	AUTO	VERN	56	0	119	359
0/05:14:12.5	OMS-4 IGNITION						3.5	0.3	A	AUTO	NORM				61.6 fps ΔV
0/05:14:48.6	OMS-4 CUTOFF						1.0	0.02	A	AUTO	VERN				
0/05:47:00	INITIATE GRAVITY GRADIENT ATT MODE	--	--	--	--		1.0	0.02	A	AUTO	VERN	--	--	--	MWVR TIME = 14 MIN EIG ANG = 159
0/06:01:00	GRAVITY GRADIENT ATT (PLB TO NORTH)	249.2	268.2	358.1	LVLH		N/A	N/A	A	MAN PULSE	VERN	3	157	141	109
0/07:47:00	TERMINATE GRAVITY GRADIENT	92.7	298	345.6	INRTL		1.0	0.02	A	MAN DISC	VERN	3	157	158	294
0/07:56:00	INITIATE AUTO MWVR TO IMU ALIGN ATT	--	--	--	--		1.0	0.02	A	AUTO	VERN	--	--	--	MWVR TIME = 13 MIN EIG ANG = 147
0/08:09:00	IMU ALIGN ATT	250	336.3	338.8	INRTL		1.0	0.02	A	AUTO	VERN	58	154	125	124
0/08:17:00	INITIATE AUTO MWVR TO COAS CAL ATT	--	--	--	--		1.0	0.02	A	AUTO	VERN	--	--	--	-Y ST TO STAR #43 -Z ST TO STAR #15 ANG SEP = 84.1
0/08:18:00	COAS CAL ATT	253.2	343.7	330.1	INRTL		1.0	0.02	A	AUTO	VERN	90	140	120	118
0/08:24:00	+X COAS CAL						N/A	N/A	B	MAN PULSE	VERN				+Xby TO STAR #26
0/08:29:00	ATTITUDE HOLD						1.0	0.02	A	AUTO	VERN				

TABLE 9-8 Continued

MET (D/HR:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBRANDS		DISC RATE (°/sec)	DAP		EARTH θ	SUN φ	REMARKS
		Roll	Pitch	Yaw		ATT (deg)	RATE (°/sec)		SEL	CONT			
0/08:35:00	INITIATE -ZLV, XPOP +Yby FWD ATT MODE	--	--	--	--	1.0	0.02	0.2	A	AUTO	--	--	MNVR TIME = 9 MIN EIG ANG = 99 P 90
0/08:44:00	-ZLV, XPOP ATT (120 ROLL BIAS)	0	192	90	LVLH	1.0	0.02	0.2	A	AUTO	90 348	55	TGT: EARTH OH 270
0/18:32:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	--	--	MNVR TIME = 13 MIN EIG ANG = 146
0/18:45:00	IMU ALIGN ATT	16.2	172.5	13.3	INRTL	1.0	0.02	0.2	A	AUTO	131 114	72 143	-Y ST TO STAR #15 -Z ST TO STAR #43 ANG SEP = 84.1
0/18:57:00	INITIATE GRAVITY GRADIENT ATT MODE	--	--	--	--	1.0	0.02	0.2	A	AUTO	--	--	MNVR TIME = 8 MIN EIG ANG = 86 P 357.6
0/19:05:00	GRAVITY GRADIENT ATT (PLB TO NORTH)	249.2	268.2	358.1	LVLH	N/A	N/A	N/A	A	MAN PULSE	3 157	16 115	TGT: EARTH OH 249.2
1/06:43:00	TERMINATE GRAVITY GRADIENT	92.3	358.6	19.1	INRTL	1.0	0.02	0.2	A	MAN DISC	3 157	90 293	
1/06:52:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	--	--	MNVR TIME = 15 MIN EIG ANG = 170
1/07:07:00	IMU ALIGN/STRK OPS DURING H2O DUMP ATT (FTO 473-01)	212.5	77.9	44.4	INRTL	1.0	0.02	0.2	A	AUTO	30 102	27 101	-Y ST TO STAR #27 -Z ST TO STAR #54 ANG SEP = 83.7
1/07:49:00	INITIATE AUTO MNVR TO PTC ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	--	--	MNVR TIME = 9 MIN EIG ANG = 100
1/07:58:00	PTC ATT	132.3	236	60.1	INRTL	1.0	0.02	0.2	A	AUTO	88 201	90 355	SUN IN YZby PLANE +X TOWARD R
1/08:07:00	START 0.4 °/SEC PTC ROTATION	132.8	236	60.1	ROTR	1.0	0.02	0.4	A	AUTO	89 236	90 355	EIGEN AXIS P 358 Y 0 ROT RATE = 0.4 °/SEC
1/19:12:00	INITIATE AUTO MNVR TO NAV BASE STA ATT #1	--	--	--	--	1.0	0.02	0.2	A	AUTO	--	--	MNVR TIME = 12 MIN EIG ANG = 134
1/19:24:00	NAV BASE STA ATT #1 (FTO 474-01)	221.4	128.1	3.5	INRTL	1.0	0.02	0.2	A	AUTO	18 119	35 282	-Y ST TO STAR #40 -Z ST TO STAR #57 ANG SEP = 90.4
1/19:35:00	INITIATE AUTO MNVR TO IMU ALIGN/NAV BASE STA ATT #2	--	--	--	--	1.0	0.02	0.5	A	AUTO	--	--	MNVR TIME = 6 MIN EIG ANG = 180
1/19:41:00	IMU ALIGN/NAV BASE STA ATT #2	50.5	326.1	357.9	INRTL	1.0	0.02	0.5	A	AUTO	111 160	129 338	-Y ST TO STAR #57 -Z ST TO STAR #50 ANG SEP = 90.4

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS ATT RATE		DISC RATE (0/sec)	DAP		EARTH θ	SUM θ	REMARKS
		Roll	Pitch	Yaw		ATT (deg)	RATE (0/sec)		SEL	RCS			
1/19:53:00	INITIATE AUTO MNVR TO -ZSI ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 8 MIN EIG ANG = 95
1/20:01:00	-ZSI ATT	129.6	234.2	59.2	INRTL	1.0	0.02	0.2	A	AUTO	VERN	87 199	P 90 Y 0 Q4 90 TGT: SUM
1/20:20:00	IECM CONTAMINATION SURVEY (FTO 453-01)					3.0	0.02	0.3	B	AUTO & MAN	VERN		
1/22:55:00	RE-ESTABLISH -ZSI ATT					1.0	0.02	0.2	A	AUTO	VERN		
1/23:18:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	MNVR TIME = 10 MIN EIG ANG = 116
1/23:28:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	121 187 179 171	
2/01:10:00	IECM PLUME SURVEY (FTO 454-01)					3.0	0.02	0.2	A	AUTO & MAN	VERN		
2/03:10:00	RE-ESTABLISH -XSI ATT					0.1	0.02	0.2	B	AUTO	VERN		
2/03:56:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 8 MIN EIG ANG = 92
2/04:04:00	IMU ALIGN ATT	256.2	13.7	345.8	INRTL	1.0	0.02	0.2	A	AUTO	VERN	57 153 91 128	-Y ST TO STAR #22 -Z ST TO STAR #51 ANG SEP = 84
2/04:22:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	MNVR TIME = 8 MIN EIG ANG = 92
2/04:30:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	118 12 180 0	
2/05:25:00	INITIATE AUTO MNVR TO RCS BURN 1 ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	
2/05:40:00	RCS BURN 1 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	VERN	TBD TBD TBD TBD	
2/05:45:00	RCS BURN 1					3.0	0.2	0.5	8	MAN DISC	NORM		
2/05:46:00	ATTITUDE HOLD					1.0	0.02	0.2	A	AUTO	VERN		

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R, Euler Seq) Roll Pitch Yaw			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP		EARTH		SUN		REMARKS
									SEL	CONT	RCS	δ	φ	δ	
2/05:47:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	--	--	
2/06:02:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	113	12	180	0
2/19:02:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	MNVR TIME = 10 MIN EIG ANG = 114
2/19:12:00	IMU ALIGN ATT	61	240.3	318.3	INRTL	1.0	0.02	0.2	A	AUTO	VERN	165	200	143	137 -Y ST TO STAR #23 -Z ST TO STAR #14 ANG SEP = 91.4
2/19:27:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	--	--	MNVR TIME = 10 MIN EIG ANG = 114
2/19:37:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	113	14	180	0
3/01:12:00	INITIATE AUTO MNVR TO RCS BURN 2 ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	
3/01:27:00	RCS BURN 2 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	VERN	TBD	TBD	TBD	TBD
3/01:32:00	RCS BURN 2					3.0	0.2	0.5	B	MAN DISC	NORH				
3/01:33:00	ATTITUDE HOLD					1.0	0.02	0.2	A	AUTO	VERN				
3/01:37:00	INITIATE AUTO MNVR TO POST BURN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	
3/01:52:00	POST RCS BURN 2 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	VERN	TBD	TBD	TBD	TBD
3/02:07:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	--	--	
3/02:22:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	57	196	180	0
3/04:05:00	INITIATE AUTO MNVR TO IMU ALIGN/BACKUP NAV ATT #1	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	MNVR TIME = 7 MIN EIG ANG = 74
3/04:12:00	IMU ALIGN/BACKUP NAV ATT #1 (FTO 476-01)	252.9	252.5	348.9	INRTL	1.0	0.02	0.2	A	AUTO	VERN	144	159	156	245 -Y ST TO STAR #41 -Z ST TO STAR #34 ANG SEP = 88.6

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R Euler Seq) Roll Pitch Yaw			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP			EARTH		SUN		REMARKS
									SEL	COUNT	RCS	θ	φ	θ	φ	
3/04:26:00	INITIATE AUTO MNVR TO BACKUP NAV ATT #2	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	--	MNVR TIME = 4 MIN EIG ANG = 38 -Y ST TO STAR #20 -Z ST TO STAR #17 ANG SEP = 85
3/04:30:00	BACKUP NAV ATT #2	246.8	288.6	351	INRTL	1.0	0.02	0.2	A	AUTO	VERN	169	311	163	173	
3/04:39:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 55
3/04:44:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	98	13	179	353	
3/17:37:00	INITIATE AUTO MNVR TO IMJ ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 53 -Y ST TO STAR #42 -Z ST TO STAR #15 ANG SEP = 89.1
3/17:42:00	IMJ ALIGN ATT	241.7	307.6	353.1	INRTL	1.0	0.02	0.2	A	AUTO	VERN	82	148	149	153	
3/18:02:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 53
3/18:07:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	145	26	179	352	
3/18:45:00	PRE FRCS THERMAL SOAKBACK CONFIG					5.0	0.2	0.2	A	AUTO	NORM					
3/18:50:00	-X TRANS (FTO 412-07)					5.0	0.2	0.2	A	AUTO	NORM					30 SEC F3F BURN
3/18:50:30	ATTITUDE HOLD					0.1	0.02	0.2	B	AUTO	VERN					
3/19:20:00	-X TRANS (FTO 412-07)					5.0	0.2	0.2	A	AUTO	NORM					30 SEC F3F BURN
3/19:20:30	ATTITUDE HOLD					0.1	0.02	0.2	B	AUTO	VERN					
3/19:50:00	-X TRANS (FTO 412-07)					5.0	0.2	0.2	A	AUTO	NORM					30 SEC F3F BURN
3/19:50:30	ATTITUDE HOLD					0.1	0.02	0.2	B	AUTO	VERN					
3/20:20:00	-X TRANS (FTO 412-07)					5.0	0.2	0.2	A	AUTO	NORM					30 SEC F3F BURN

ORIGINAL PAGE
OF POOR QUALITY

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R Euler Seq) Roll Pitch Yaw			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP		EARTH		SUN		REMARKS
3/20:20:30	ATTITUDE HOLD								SEL	CONT	RCS	8	8	8	
3/20:50:00	-X TRANS (FTO 412-07)							0.2	B	AUTO	VERN				
3/20:53:00	POST FRCS THERMAL SOAKBACK CONFIG							0.2	A	AUTO	NORM				30 SEC F3F BURN
3/23:18:00	PRCS ATT HOLD TEST (FTO 477-01)							0.2	B	AUTO	VERN				
3/23:18:30	ATTITUDE HOLD							0.2	A	AUTO	NORM				
3/23:41:00	INITIATE AUTO MNVR TO TACAN TRK ATT							0.2	B	AUTO	VERN				
3/23:56:00	TACAN TRK ATT (FTO 479-01)	21.4	347.8	29.2	INRTL	5.0	0.2	0.2	A	AUTO	NORM	79	357	97	10
3/23:56:30	INITIATE TACAN NAV ROT	21.4	347.8	29.2	ROTR	5.0	0.2	0.2	A	AUTO	NORM	81	357	97	10
4/00:12:00	INITIATE AUTO MNVR TO -XSI ATT							0.2	B	AUTO	VERN				
4/00:27:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	76	12	179	352
4/01:45:00	FCS CHECKOUT - APU START							0.2	A	AUTO	NORM				
4/01:53:00	APU SHUTDOWN							0.2	A	AUTO	VERN				
4/01:55:00	SENSOR TEST							0.2	A	AUTO	VERN				
4/02:00:00	RE-ESTABLISH -XSI ATT							0.2	B	AUTO	VERN				
4/02:03:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	55	7	179	352
4/02:46:00	INITIATE AUTO MNVR TO IMU ALIGN ATT							0.2	A	AUTO	VERN				

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R Euler Seq)			ATT MODE	DEADENDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP		EARTH θ	SUN θ	REMARKS
		Roll	Pitch	Yaw		ATT	Rate		SEL	CONT			
4/02:51:00	IMU ALIGN ATT	241.7	307.6	353.1	INRTL		1.0	0.02	A	AUTO	104	145	-Y ST TO STAR #12 -Z ST TO STAR #15 ANG SEP = 89.1
4/03:02:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--		0.1	0.02	B	AUTO	--	--	MNVR TIME = 5 MIN ETG ANG = 53
4/03:07:00	-XSI ATT	192	278.9	336.8	INRTL		0.1	0.02	B	AUTO	157	179	352
4/04:15:00	INITIATE AUTO MNVR TO RCS BURN 3 ATT	--	--	--	--		1.0	0.02	A	AUTO	--	--	
4/04:30:00	RCS BURN 3 ATT	TBD	TBD	TBD	INRTL		1.0	0.02	A	AUTO	TBD	TBD	TBD
4/04:36:00	RCS BURN 3						3.0	0.2	B	MAN DISC			
4/04:37:00	ATTITUDE HOLD						1.0	0.2	A	AUTO			
4/04:47:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--		0.1	0.02	B	AUTO	--	--	
4/05:02:00	-XSI ATT	192	278.9	336.8	INRTL		0.1	0.02	B	AUTO	63	9	179
4/18:18:00	INITIATE AUTO MNVR TO IMU ALIGN/NAV BASE STA ATT #1	--	--	--	--		1.0	0.02	A	AUTO	--	--	MNVR TIME = 11 MIN ETG ANG = 121 -Y ST TO STAR #19 -Z ST TO STAR #32 ANG SEP = 87.8
4/18:29:00	IMU ALIGN/NAV BASE STA ATT #1 (FTO 474-01)	165.6	157.2	4.3	INRTL		1.0	0.02	A	AUTO	31	131	57
4/18:35:00	INITIATE AUTO MNVR TO IMU ALIGN/NAV BASE STA ATT Q2	--	--	--	--		1.0	0.02	A	AUTO	--	--	MNVR TIME = 6 MIN ETG ANG = 180 -Y ST TO STAR #32 -Z ST TO STAR #49 ANG SEP = 87.8
4/18:41:00	IMU ALIGN/NAV BASE STA ATT #2 (FTO 474-01)	104.9	346.1	11.1	INRTL		1.0	0.02	A	AUTO	123	101	108
4/18:52:00	INITIATE AUTO MNVR TO FRCS THERMAL SOAKBACK ATT	--	--	--	--		1.0	0.02	A	AUTO	--	--	MNVR TIME = 12 MIN ETG ANG = 144
4/19:04:00	FRCS THERMAL SOAKBACK ATT	317.6	227.7	54.5	INRTL		1.0	0.02	A	AUTO	81	42	90
4/19:13:00	FRCS THERMAL SOAKBACK CONFIG						5.0	0.2	A	AUTO			+Z SI +X TOWARD R

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ) Roll Pitch Yaw			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP		EARTH θ φ	SUN θ φ	REMARKS
									SEL	CONT	RCS		
4/19:15:00	-X TRANS (FTO 412-05)					5.0	0.2	0.2	A	AUTO	NORM		30 SEC F3F BURN
4/19:18:00	POST FRCS THERMAL SOAKBACK CONFIG					0.1	0.02	0.2	B	AUTO	VERN		
4/19:24:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	MNVR TIME = 1 MIN EIG ANG = 10
4/19:25:00	+ZSI ATT	321.2	224	51.4	INRTL	0.1	0.02	0.2	B	AUTO	VERN	101 124 90 179	P 270 Y 0 OM 267 TGT: SUN
4/20:55:00	INITIATE AUTO MNVR TO RCS BURN 4 ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	
4/21:10:00	RCS BURN 4 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	VERN	TBD TBD TBD TBD	
4/21:15:00	RCS BURN 4					3.0	0.2	0.5	B	MAN DISC	NORM		
4/21:16:00	ATTITUDE HOLD					1.0	0.02	0.2	A	AUTO	VERN		
4/21:20:00	INITIATE AUTO MNVR TO POST BURN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	
4/21:35:00	POST RCS BURN 4 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	VERN	TBD TBD TBD TBD	
4/21:52:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	
4/22:07:00	+ZSI ATT	321.2	224	51.4	INRTL	0.1	0.02	0.2	B	AUTO	VERN	84 50 90 180	P 270 Y 0 OM 267 TGT: SUN
4/22:34:00	INITIATE AUTO MNVR TO IECH GAS RELEASE ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 10 MIN EIG ANG = 115
4/22:44:00	IECH GAS RELEASE ATT (FSO S431-01)	0	90	270	LVLH	1.0	0.02	0.2	A	AUTO	VERN	90 270 77 254	P 0 Y 270 OM 90 TGT: EARTH
4/23:05:00	IECH GAS RELEASE ROTATION	345.4	206.5	61.7	ROTR	0.5	0.02	0.007	A	AUTO	VERN	90 270 77 170	EIGEN AXIS P 180 Y 0 ROT RATE = 0.007 °/SEC
4/23:50:00	STOP ROTATION/ATTITUDE HOLD	326.5	206.5	61.7	INRTL	1.0	0.02	0.2	A	AUTO	VERN	90 108 77 189	

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS		DISC RATE (°/sec)	DAP		EARTH		SUN		REMARKS
		Roll	Pitch	Yaw		ATT (deg)	RATE (°/sec)		SEL	CONT	θ	φ	θ	φ	
4/23:53:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	--	0.1	0.02	B	AUTO	--	--	--	--	MNVR TIME = 2 MIN EIG ANG = 17
4/23:55:00	+ZSI ATT	321.2	224	51.4	INRTL	0.1	0.02	0.2	B	AUTO	100	117	90	180	TGT: SUN P 270 Y 0 OM 267
5/01:18:00	PRE RMS/PRCS INTERACTION CONFIG (FTO 452-03)					N/A	N/A	N/A	B	MAN PULSE					
5/01:58:00	POST RMS/PRCS INTERACTION CONFIG					0.1	0.02	0.2	B	AUTO					
5/04:24:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	--	--	--	--	MNVR TIME = 6 MIN EIG ANG = 64
5/04:30:00	IMU ALIGN ATT	12.4	208.6	4.9	INRTL	1.0	0.02	0.2	A	AUTO	144	104	104	142	-Y ST TO STAR #51 -Z ST TO STAR #22 ANG SEP = 84
5/04:48:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 64
5/04:54:00	+ZSI ATT	321.2	224	51.4	INRTL	0.1	0.02	0.2	B	AUTO	97	227	90	180	TGT: SUN P 270 Y 0 OM 267
5/05:05:00	RCS HOT FIRE TEST					N/A	N/A	N/A	A	MAN PULSE					
5/05:20:00	RE-ESTABLISH +ZSI ATT					0.1	0.02	0.2	B	AUTO					
5/15:45:00	FRCS/ARCS THERMAL SOAKBACK DAP CONFIG					5.0	0.2	0.2	A	AUTO					P, Y JET OPT = 3 (TAIL CNL)
5/17:57:00	INITIATE AUTO MNVR TO IMU ALIGN/BACKUP NAV ATT 1	--	--	--	--	3.0	0.2	0.2	A	AUTO	--	--	--	--	MNVR TIME = 8 MIN EIG ANG = 86
5/18:05:00	IMU ALIGN/BACKUP NAV ATT 1	252.9	252.5	348.9	INRTL	3.0	0.2	0.2	A	AUTO	150	141	149	260	-Y ST TO STAR #41 -Z ST TO STAR #34 ANG SEP = 88.6
5/18:22:00	INITIATE AUTO MNVR TO BACKUP NAV ATT 2	--	--	--	--	3.0	0.2	0.2	A	AUTO	--	--	--	--	MNVR TIME = 4 MIN EIG ANG = 38
5/18:26:00	BACKUP NAV ATT 2	246.8	288.6	351	INRTL	3.0	0.2	0.2	A	AUTO	158	339	165	180	-Y ST TO STAR #20 -Z ST TO STAR #17
5/18:35:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	3.0	0.2	0.2	A	AUTO	--	--	--	--	MNVR TIME = 8 MIN EIG ANG = 92

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS		DISC RATE (°/sec)	DAP		EARTH		SUN	REMARKS		
		Roll	Pitch	Yaw		ATT RATE (deg)	ATT RATE (°/sec)		SEL	CONT	RCS	θ			φ	
5/18:43:00	+ZSI ATT	321.2	224	51.4	INRTL	3.0	0.2	0.2	A	AUTO	NORM	84	281	90	180	P 270 Y 0 OM 267 TGT: SUN
5/19:30:00	INITIATE AUTO MNVR TO BACKUP NAV ATT 1	--	--	--	--	3.0	0.2	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 7 MIN EIG ANG = 75
5/19:37:00	BACKUP NAV ATT 1	255	255.8	0.6	INRTL	3.0	0.2	0.2	A	AUTO	NORM	145	153	145	241	-Y ST TO STAR #41
5/19:52:00	INITIATE AUTO MNVR TO BACKUP NAV ATT 2	--	--	--	--	3.0	0.2	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 3 MIN EIG ANG = 36
5/19:55:00	BACKUP NAV ATT 2	246.8	288.6	351	INRTL	3.0	0.2	0.2	A	AUTO	NORM	164	347	165	180	-Y ST TO STAR #20 -Z ST TO STAR #17
5/20:07:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	5.0	0.2	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 8 MIN EIG ANG = 92
5/20:15:00	+ZSI ATT	321.2	224	51.4	INRTL	5.0	0.2	0.2	A	AUTO	NORM	83	286	90	180	P 270 Y 0 OM 267 TGT: SUN
5/22:22:00	PRSD +PITCH MNVR (FTO 445-01)	321.2	224	51.4	ROTR	5.0	0.2	1.0	A	MAN DISC	NORM	87	72	90	180	EIGEN AXIS P 0 Y 90 ROT RATE = 1.0 °/SEC
5/22:25:00	PDRS -PITCH MNVR (FTO 445-01)	38.8	44	308.6	ROTR	5.0	0.2	1.0	A	MAN DISC	NORM	89	96	90	0	EIGEN AXIS P 0 Y 270 ROT RATE = 1.0 °/SEC
5/22:28:00	+ZSI ATT	321.2	224	51.4	INRTL	5.0	0.2	0.2	A	AUTO	NORM	94	95	90	180	P 270 Y 0 OM 267 TGT: SUN
5/22:32:00	INITIATE AUTO MNVR TO FRCS/ARCS THERMAL SOAKBACK ATT	--	--	--	--	5.0	0.2	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 1 MIN EIG ANG = 3
5/22:33:00	FRCS/ARCS THERMAL SOAKBACK ATT	319.3	226.9	53.2	INRTL	5.0	0.2	0.2	A	AUTO	NORM	97	114	90	180	
5/22:46:00	FRCS THERMAL SOAKBACK BURN (FTO 412-06)					5.0	0.2	0.2	A	AUTO	NORM					F2F/F3F 30 SEC BURN
5/22:47:00	ARCS THERMAL SOAKBACK BURN (FTO 412-08)					5.0	0.2	0.2	A	AUTO	NORM					L1A 100 SEC BURN
5/22:49:00	ATTITUDE HOLD					5.0	0.2	0.2	A	AUTO	NORM					
5/23:02:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	5.0	0.2	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 1 MIN EIG ANG = 3

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS		DISC RATE (0/sec)	DAP		EARTH		SUN		REMARKS
		Roll	Pitch	Yaw		ATT (deg)	RATE (0/sec)		SEL	CONT	RCS	θ	ϕ	δ	
5/23:03:00	751 ATT	321.2	224	51.4	INRTL	5.0	0.2	0.2	A			98	236	90 180	P 270 Y 0 OM 267 TGT: SUN
6/04:22:00	FRCS/ARCS THERMAL SOAKBACK RECONFIG					1.0	0.02	0.2	A	AUTO	VERN				
6/04:32:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	MNVR TIME = 8 MIN EIG ANG = 90
6/04:40:00	IMU ALIGN ATT	261	349.6	39	INRTL	1.0	0.02	0.2	A	AUTO	VERN	51	101	92 131	-Y ST TO STAR #43 -Z ST TO STAR #28 ANG SEP = 85
6/04:52:00	INITIATE AUTO MNVR TO PTC ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	MNVR TIME = 7 MIN EIG ANG = 76
6/04:59:00	PTC ATT	8.6	226.8	53	INRTL	1.0	0.02	0.2	A	AUTO	VERN	106	161	90 131	SUN IN YZBY PLANE +X TOWARD R EIGEN AXIS P 358
6/05:05:00	START 0.4 DEG/SEC PTC ROTATION	8.6	226.8	53	ROTR	1.0	0.02	0.4	A	AUTO	VERN	101	185	90 131	ROT RATE = 0.40/SEC EIGEN AXIS P 358
6/05:25:00	S-BAND/UHF ANTENNA PATTERNS (FTO 471-01)	133	221.3	54.1	ROTR	5.0	0.2	2.0	A	AUTO	NORM	79	143	87 11	ROT RATE = 2.00/SEC EIGEN AXIS P 358
6/05:35:00	RE-ESTABLISH PTC	252	222.5	50.8	ROTR	1.0	0.02	0.4	A	AUTO	VERN	72	64	89 131	ROT RATE = 0.40/SEC EIGEN AXIS P 358
6/16:02:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	B	AUTO	VERN	--	--	--	MNVR TIME = 9 MIN EIG ANG = 105
6/16:11:00	IMU ALIGN ATT	248.2	248.9	339.4	INRTL	1.0	0.02	0.2	B	AUTO	VERN	28	141	148 281	-Y ST TO STAR #41 -Z ST TO STAR #50 ANG SEP = 85
6/16:22:00	INITIATE AUTO MNVR TO TAIL-TO- SUN	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	MNVR TIME = 3 MIN EIG ANG = 34
6/16:25:00	TAIL-TO-SUN ATT	258.6	284.1	341	INRTL	1.0	0.02	0.2	A	AUTO	VERN	54	144	176 178	SUN 30 BELOW -Xby
6/18:05:00	CONFIG TO PRCS					3.0	0.2	0.5	B	AUTO	NORM				
6/19:54:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	3.0	0.2	0.5	B	AUTO	NORM	--	--	--	MNVR TIME = 4 MIN EIG ANG = 119
6/19:58:00	IMU ALIGN ATT	227	35.6	43.9	INRTL	3.0	0.2	0.5	B	AUTO	NORM	66	114	58 135	-Y ST TO STAR #14 -Z ST TO STAR #26 ANG SEP = 91.4

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TABLE 9-8 Concluded

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R Euler Seq) Roll Pitch Yaw			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP		EARTH		SUN		REMARKS
		Roll	Pitch	Yaw		ATT	RATE		SEL	CONT	0	φ	θ	φ	
6/20:05:00	INITIATE AUTO MNVR TO IMU ALIGN VERIFICATION ATT	--	--	--	--	--	3.0	0.2	B	AUTO	--	--	--	--	MNVR TIME = 2 MIN EIG ANG = 48
6/20:07:00	IMU ALIGN VERIFICATION ATT	174.1	57.6	25.8	INRTL	--	3.0	0.2	B	AUTO	78	165	41	192	-Y ST TO STAR #49 -Z ST TO STAR #60 ANG SEP = 84.1
6/20:22:00	INITIATE AUTO MNVR TO TOP-TO- SUN ATT	--	--	--	--	--	3.0	0.2	B	AUTO	--	--	--	--	MNVR TIME = 4 MIN EIG ANG = 111
6/20:26:00	TOP-TO-SUN ATT	141.2	155.9	334.9	INRTL	--	3.0	0.2	B	AUTO	46	204	70	0	
6/21:09:00	CONFIG RJDs FOR ENTRY						3.0	0.2	B	AUTO					
6/21:11:00	DPS RECONFIG TO GNC						3.5	0.3	*	AUTO					
6/22:26:00	INITIATE AUTO MNVR TO DEORB BURN ATT	--	--	--	--	--	3.5	0.3	*	AUTO	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 51
6/22:31:00	DEORB BURN ATT	152	113	354	INRTL	--	3.5	0.3	*	AUTO	133	0	30	316	
6/22:40:00	ACTIVATE SINGLE APU						3.5	0.3	*	AUTO					
6/22:41:49	DEORB BURN IGNITION						3.5	0.3	*	AUTO					315.2 fps ΔV
6/22:44:44	DEORB BURN CUTOFF						3.5	0.3	*	AUTO					
6/22:46:00	INITIATE AUTO MNVR TO EI-5 ATT	--	--	--	--	--	3.5	0.3	*	AUTO	--	--	--	--	MNVR TIME = 11 MIN EIG ANG = 132
6/22:55:00	ACTIVATE REMAINING APUS						3.5	0.3	*	AUTO					
6/22:57:00	EI-5 ATT	196	339	26	INRTL	--	3.5	0.3	*	AUTO	103	179	107	201	
6/23:03:37	EI-5	1	39	359	LVLH	--	3.5	0.3	*	AUTO	129	180	107	201	

ABBREVIATIONS/ACRONYMS

More complete compilations of abbreviations and acronyms are available in the Acronyms and Abbreviations Dictionary (Ref. 4).

ABBREVIATIONS/
ACRONYMS

ABBREVIATIONS/ACRONYMS

ACIP	AERODYNAMIC COEFFICIENTS IDENTIFICATION PACKAGE
ACN	ASCENSION ISLAND (STDN SITE)
ACT	ACTIVATE
ADI	ATTITUDE DIRECTION INDICATOR
AGO	SANTIAGO, CHILE (STDN SITE)
ANT	ANTENNA
AOA	ABORT ONCE AROUND
AOS	ACQUISITION OF SIGNAL
ATT	ATTITUDE
ATO	ABORT TO ORBIT
BDA	BERMUDA ISLAND, BWI (STDN SITE)
BOT	BOTSWANA (STDN SITE)
BUC	BUCKHORN, CALIFORNIA (STDN SITE)
CAL	CALIBRATION
CCTV	CLOSED CIRCUIT TV
CCU	CREWMAN COMMUNICATIONS UMBILICAL
CDR	COMMANDER
CDT	CENTRAL DAYLIGHT TIME
CFES	CONTINUOUS FLOW ELECTROPHORESIS SYSTEM
CHG	CHANGE
CL	CHECKLIST
COAS	CREWMAN OPTICAL ALIGNMENT SIGHT
C&W	CAUTION AND WARNING
DAP	DIGITAL AUTO PILOT
DB	DEADBAND
DEU	DISPLAY ELECTRONICS UNIT
DFI	DEVELOPMENT FLIGHT INSTRUMENTATION

ABBREVIATIONS/
ACRONYMS

DKR	DAKAR, SENEGAL (STDN SITE)
DTO	DETAILED TEST OBJECTIVE
ECLS	ENVIRONMENTAL CONTROL LIFE SUPPORT SYSTEM
EDW	EDWARDS AFB, CALIFORNIA (DEORB OPT SITE)
EES	EMERGENCY EJECTION SUITS
EET	EVENT ELAPSED TIME
EMU	EXTRAVEHICULAR MOBILITY UNIT
EVA	EXTRAVEHICULAR ACTIVITY
FC	FUEL CELL
FDF	FLIGHT DATA FILE
FM	FREQUENCY MODULATION
FRD	FLIGHT REQUIREMENTS DOCUMENT
FSO	FUNCTIONAL SUPPLEMENTARY OBJECTIVE
FTO	FUNCTIONAL TEST OBJECTIVE
FWD	FORWARD
GAS	GET-AWAY SPECIAL
GDS	GOLDSTONE, CALIFORNIA (STDN SITE, 1ST ANTENNA)
GDX	GOLDSTONE, CALIFORNIA (STDN SITE, 2ND ANTENNA)
GNC	GUIDANCE NAVIGATION AND CONTROL
GPC	GENERAL PURPOSE COMPUTER
GSTDN	GROUND SPACE TRACKING & DATA NETWORK
GTS	GUAM ISLAND, U.S. (SGLS SITE)
GWM	GUAM ISLAND, U.S. (STDN SITE)
HAW	HAWAII (KAUAI, STDN SITE)
HTS	HAWAII (SGLS SITE)
HYD	HYDRAULIC
IECM	INDUCED ENVIRONMENTAL CONTAMINATION MONITOR

IMU	INERTIAL MEASUREMENT UNIT
INRTL	INERTIAL
IOS	INDIAN OCEAN (SGLS SITE)
ITS	INTERIM TELEPRINTER SYSTEM
LOS	LOSS-OF-SIGNAL; LINE-OF-SIGHT
LVLH	LOCAL VERTICAL LOCAL HORIZONTAL
MAD	MADRID, SPAIN (STDN SITE, 1ST ANTENNA)
MAX	MADRID, SPAIN (STDN SITE, 2ND ANTENNA)
MCC	MISSION CONTROL CENTER
MDM	MULTIPLEXER/DEMULTIPLEXER
MECO	MAIN ENGINE CUTOFF
MET	MISSION ELAPSED TIME
MIL	MERRITT ISLAND, FLORIDA (STDN SITE)
MILA	MERRITT ISLAND LAUNCH AREA
MLR	MONODISPERSE LATEX REACTOR
MLX	MERRITT ISLAND, FLORIDA (STDN SITE, 2ND ANTENNA)
MNVR	MANEUVER
MPM	MANIPULATOR POSITION MECHANISM
MPS	MAIN PROPULSION SYSTEM
MRL	MANIPULATOR RETENTION LATCHES
MTVC	MANUAL THRUST VECTOR CONTROL
NHS	NEW HAMPSHIRE (SGLS SITE)
OBS	OPERATIONAL BIOMED SENSORS; OBSERVATIONS
OEX	ORBITER EXPERIMENTS
OI	OPERATIONAL INSTRUMENTATION
OMS	ORBITAL MANEUVERING SYSTEM
OPS	OPERATIONS; OPERATIONAL SEQUENCE

ORB	ORBITER
ORR	ORRORAL VALLEY, AUSTRALIA (STDN SITE)
PCM	PULSE-CODE MODULATION
PDRS	PAYLOAD DEPLOYMENT AND RETRIEVAL SYSTEM
PL	PAYLOAD
PLBD	PAYLOAD BAY DOORS
PLT	PILOT
PM	PHASE MODULATION
PMC	PRIVATE MEDICAL COMMUNICATION
PMP	PUMP
PRCS	PRIMARY RCS
PRO	PROCEED
PSA	PRE/POST SLEEP ACTIVITY
PTC	PASSIVE THERMAL CONTROL
RCS	REACTION CONTROL SYSTEM
REF	REFERENCE
REFSMMAT	REFERENCE STABLE MEMBER MATRIX
RELMAT	RELATIVE MATRIX
RF	RADIO FREQUENCY
RMS	REMOTE MANIPULATOR SYSTEM
ROT	ROTATION
RTC	REAL TIME COMMAND
SAA	SOUTH ATLANTIC ANOMALY
S-BD	S-BAND
SEL	SELECT
SGLS	SPACE GROUND LINK SYSTEM/STATION (DOD)
SPC	STORED PROGRAM COMMAND
SSO	SUPPORT SYSTEM FOR THE OEX

ST	STAR TRACKER
STDN	SPACE TRACKING & DATA NETWORK
STS	SPACE TRANSPORTATION SYSTEM
TB	TALKBACK
TDRS	TRACKING AND DATA RELAY SATELLITE
TIG	TIME OF IGNITION
UHF	ULTRA HIGH FREQUENCY
VAC	VACUUM
VTR	VIDEO TAPE RECORDER
VTB	VANDENBERG TRACKING STATION (SGLS SITE)
WCCU	WIRELESS CREW COMMUNICATIONS UNIT
WCS	WASTE COLLECTION SYSTEM
WMC	WASTE MANAGEMENT COMPARTMENT
XFER	TRANSFER
X-POP	X BODY AXIS PERPENDICULAR TO ORBIT PLANE
-XSI	-X BODY AXIS TOWARDS SUN (TAIL TO SUN)
YAR	YARRAGADEE, AUSTRALIA (STDN SITE)
Y-POP	Y BODY AXIS PERPENDICULAR TO ORBIT PLANE
-ZLV	-Z LOCAL VERTICAL (-Z BODY AXIS TOWARDS EARTH)
+ZSI	+Z BODY AXIS TOWARDS SUN (BOTTOM TO SUN)

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